

MOTOR AGE

Vol. XXIX
No. 5

CHICAGO, FEBRUARY 3, 1916

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Three dollars a year



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I enclose 10c. for one can of Johnson's Cleaner and one can of Johnson's Prepared Wax—sufficient for one application on a large car.

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"Carries Gasoline Unfail- ingly without Attention"

says "Automobile"

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Editor THE AUTOMOBILE:—Will you kindly inform me of the relative merits of the several types of gasoline feed? So far as I know there are three types: gravity, vacuum and force feed, by air pressure. Of whom may I obtain literature on vacuum feed? I have air pressure feed and am always uneasy about leaks developing. Can one feel more secure with other types, or is he warranted in feeling greater security?

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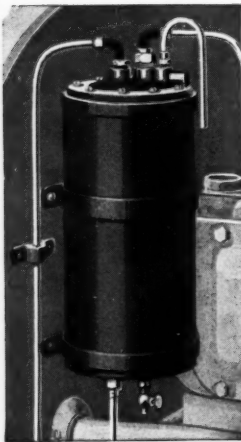
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any car—old or new

\$10



MOTOR AGE



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NEXT WEEK

"The Trans-Southland Highway," which will be a feature article of Motor Age for February 10, gives a most interesting account of a path-finding trip in which they route a new all-year transcontinental highway from San Diego on the Pacific to Washington, D. C., this winter. Building highways on paper has been a favorite indoor sport in America, but the movement for the Southern National Highway is getting off paper to solid ground in a hurry.

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Up
the
Shows

Motor car shows stimulate the buying mood. They create new desires. They are the starting bombs of your spring selling campaign.

Special advertising effort now, while enthusiasm over motor cars and equipment is at white heat, and uninterrupted advertising throughout the next four months, will direct purchases your way at buying time.

MOTOR AGE—
"The Motoring Authority of America"—is the reference book of car owners and dealers whose verdicts count.

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F. O. B. Detroit

MOTOR AGE

Dodging Death at Dunkerque

by Hi Sibley

I ADMIT that I am no soldier. I want that understood before we go any further. This is not a recital of deeds of valor, but a confession of the ticklish sensations of a man with more imagination than sand who unexpectedly finds himself under fire.

I have no license to write up my experience from any other angle, for, although no Mauser bullets whistled past my ears, no shells burst within a hundred yards of me, and the only time I was wounded came from rolling up a side curtain with a hornet on it, in all my 3 skeery months an ambulance chauffeur in France and Flanders I was in a continuous tremor of apprehension. Momentarily I expected to get hit. And that, I think, is worse than being hit when not expecting it.

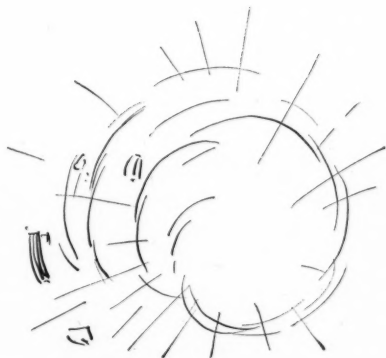
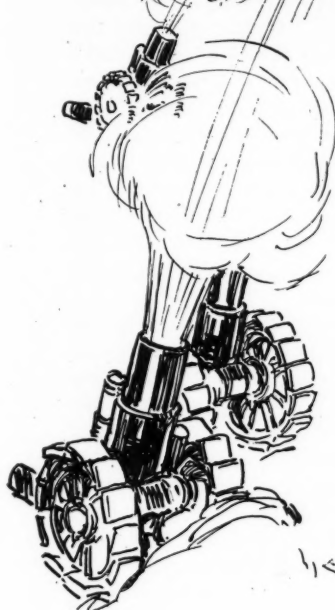
Now we may proceed. When I went abroad last spring as a journalistic free lance to write up the war I had no idea of getting anywhere near the danger zone. My original plan was to take up a position some 200 miles from the front, and to be faced in the opposite direction ready to place 200 more miles between me and the front on short notice, if occasion demanded. This impressed me as a comparatively safe course to pursue, and would permit me to return to my native land intact.

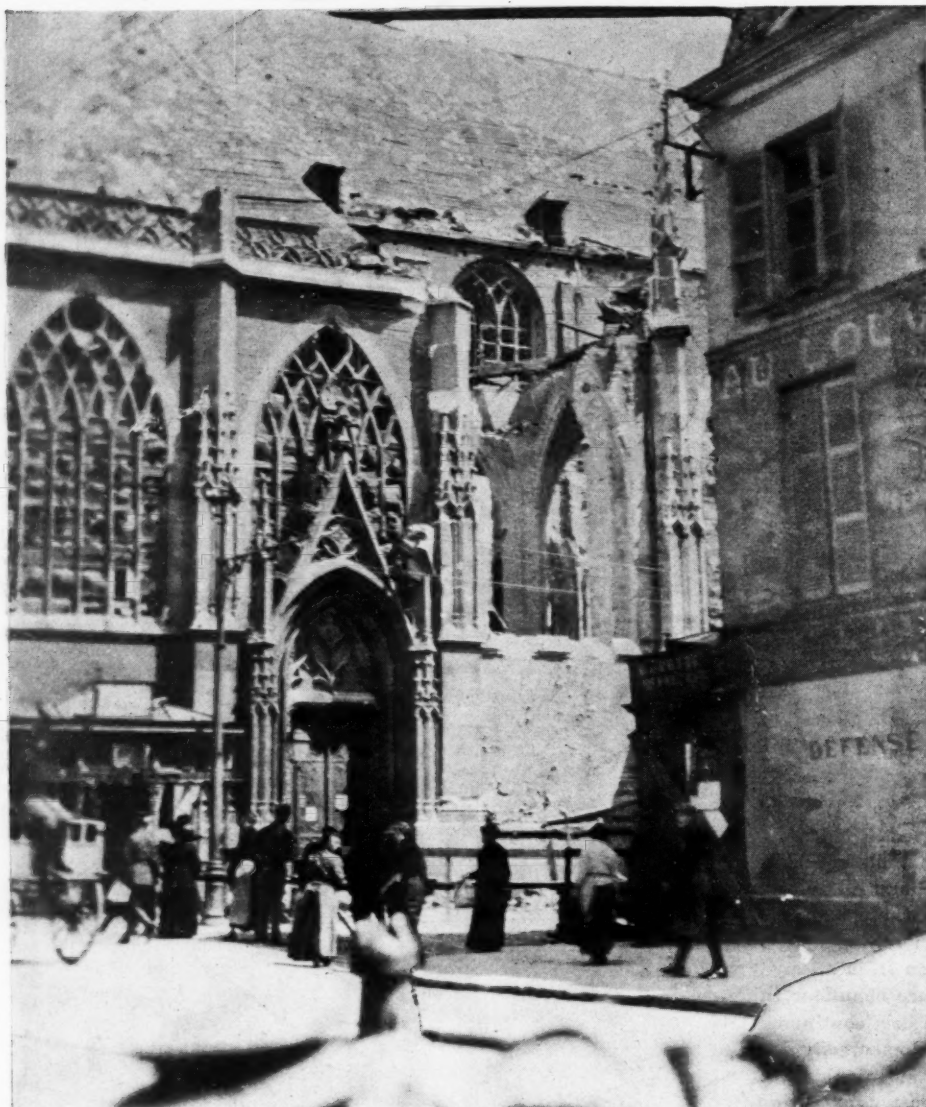
In exactly 8 weeks—to a day—after I had bid my family goodbye, the Germans were dropping 15-inch shells all around me.

And that is the story.

A month was spent in London, a peaceful enough city but not particularly hospitable to Americans on account of their attitude on our Lusitania negotiations.

This is the second of a series of articles descriptive of Mr. Sibley's experiences as a motor car driver with the American ambulance corps in war-ridden Europe, the first, "With the Squirrel Car in Flanders," appearing in last week's issue of Motor Age. The article is illustrated from sketches made by the author while at the front and photographs taken by him. The photographs of the ruins at Dunkerque and Nieuport were "shot from the hip" in a moving ambulance, as it was a serious offense to take a snapshot after a bombardment.—The Editor.





Church on the Rue l'Eglise, Dunkerque, after the bombardment by the Germans

The latter part of May Zeppelin raids were threatened and not desiring to witness one at such close range, I went to Paris. On my second day there a snoopery taube slipped over and dropped eight bombs in the vicinity of the Eiffel Tower. At first I was somewhat apprehensive, but finding myself unscratched and nothing happening for a week following, I began to hanker for more excitement. These homeopathic doses of war were fascinating. They grew on one.

The Appeal of a Uniform

Came a friend who urged me to join the American ambulance hospital corps. The prospect of being in uniform was alluring; all Paris was in uniform; it was infectious. To him I loaned a large, receptive ear and enlisted for 3 months' service. There was a great satisfaction in doing one's bit. The novelty of work in Paris soon wore off, however, and I began to chafe for something with still more zest. My persuasive friend suggested that I apply for a place on one of the squads at the front.

"Absolutely no danger," he insisted. "Corking chance to see real army life,

and tour the country in a car. Work isn't hard at all," and all that sort of thing.

Again I loaned an ear, and I put in the application. But I am laying for that friend yet.

Well, in due time orders were given me to report at Dunkerque at once, and I was tickled all the way through. The mere

thought of being at the very back door of the world's greatest war sent thrills of anticipation chasing up and down my spine. What an opportunity to swank when I got home!

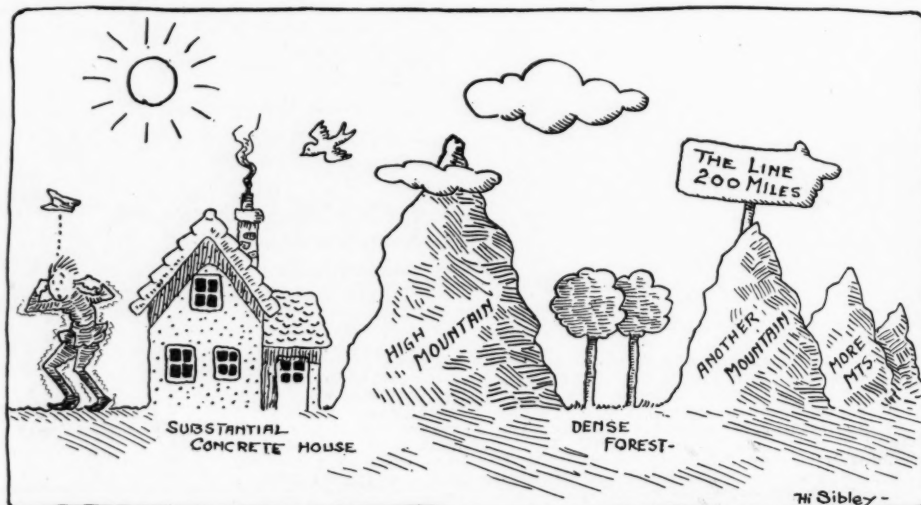
At Dunkerque I found the squad delightfully situated. We were billeted in a summer villa at Malo-les-bains, a semi-fashionable watering place just outside the city gates. The blue sea spread out before us; our balcony looked down upon a broad promenade alive with a kaleidoscopic array of bright uniforms. There were tall British officers in khaki, dapper little Frenchmen, gaily attired Belgian lieutenants, dusky Turcos, and good old Territorials. And too, there were frisky little French children, pretty girls and smartly gowned women for whom proximity to the war held no terrors. Beyond, on the beach, were regiments of troops, cavalry and artillery in review; platoons of shouting Arabs galloped over the hard sands on their spirited mounts. A world of military life and color swept past our windows. And what is more, we had a capable red-haired Flemish cook who supplied us with regular and bounteous meals. Ah, it was good to live!

And then, without warning, the world turned upside down.

At three o'clock on the morning of June 22 we were awakened by a terrific crash. It was the first shell of the great bombardment of Dunkerque. That shell, fifteen inches in diameter and weighing nearly a ton, had been hurled at us from a gun 23 miles away; it had risen to a height of 10 miles in its flight, and when it struck, the earth rocked as from a collision with a runaway planet.

"We're in for some fun!" shouted someone up the stairway. We were in for something all right, but fun is not the term I would have used. I scrambled into my clothes, and as I did so I could hear the plaintive wail of the alarm whistle and reports of small guns. I shivered. It was a cold morning.

Two of the others joined me as I bounced down the stairs and we got out to the beach just in time to see the German



My original plan was to take up a position some 200 miles from the front

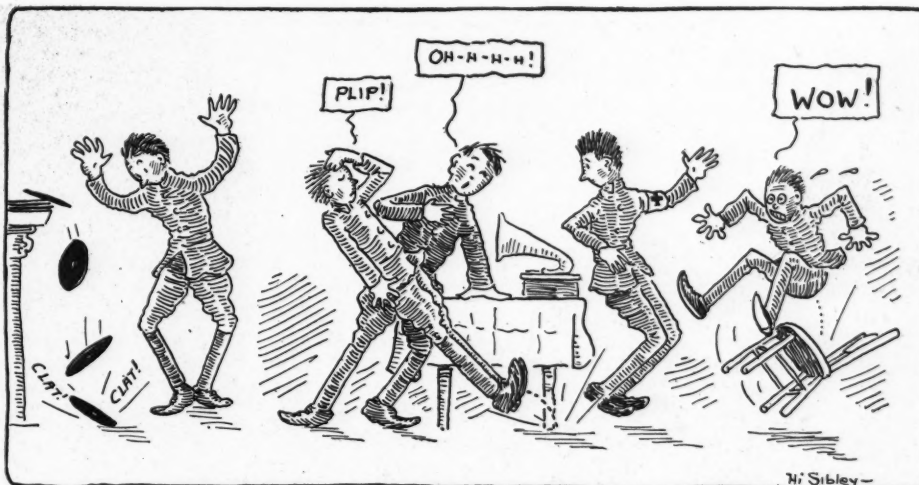
range-finding taube coming directly toward us from the sea. Anti-aircraft shells were bursting all about it, but it came on and on in the face of that hail of lead until we could distinguish the pilot, when the second shell struck and then, apparently satisfied with the aim of that destructive gun over behind Dixmude, it turned about and was lost in the haze, a pack of shells snapping at its heels like so many frenzied terriers.

Six minutes had elapsed between the first and second shells, and when in another six, the third struck the beach near the lighthouse before my very eyes, and kicked up sand and smoke higher than that structure, and made more noise than the other two, then I began to feel decidedly wobbly and lost all interest in war. Alluring visions of a peaceful little Indiana town rose before me; could I have been spirited back there then I would be content to be a worm all the rest of my days. I did not wish to swank.

By this time crowds were surging up the beach to a place of greater safety; all manner of crafts were issuing from the harbor, like rats from a burning stable; dense clouds of smoke were rising from a warehouse on the quay; the alarm whistle, as though it were frightened to death, kept up its incessant wail—a fourth shell struck and threw debris high in the air, and then, when it seemed that all Hell had broken loose, an officer ran over to our place and called for volunteers!

"We need all the men we can get," he shouted, and added, significantly, "There's a good chance of getting hurt, you know!"

Great Scott! When I heard that I was



One of the boys spilled a stack of Victrola records from the mantel shelf

about ready to fold up. My first impulse was to make off up the beach as fast as a very willing pair of legs would take me, but while I hesitated I saw one of the boys dash from the house with a stretcher on his shoulder and run to his car. Others followed, and through sheer inability to resist, I started after them.

A Too Reliable Car

Our chief, Roger Balbiani, gave hurried instruction to take three stretchers apiece and report at the railway station in town for further orders. I fervently hoped my car wouldn't start. But it did, almost at the first turn of the crank. I cursed the manufacturer for making it so reliable. And with a very much gone feeling I started into the zone of fire.

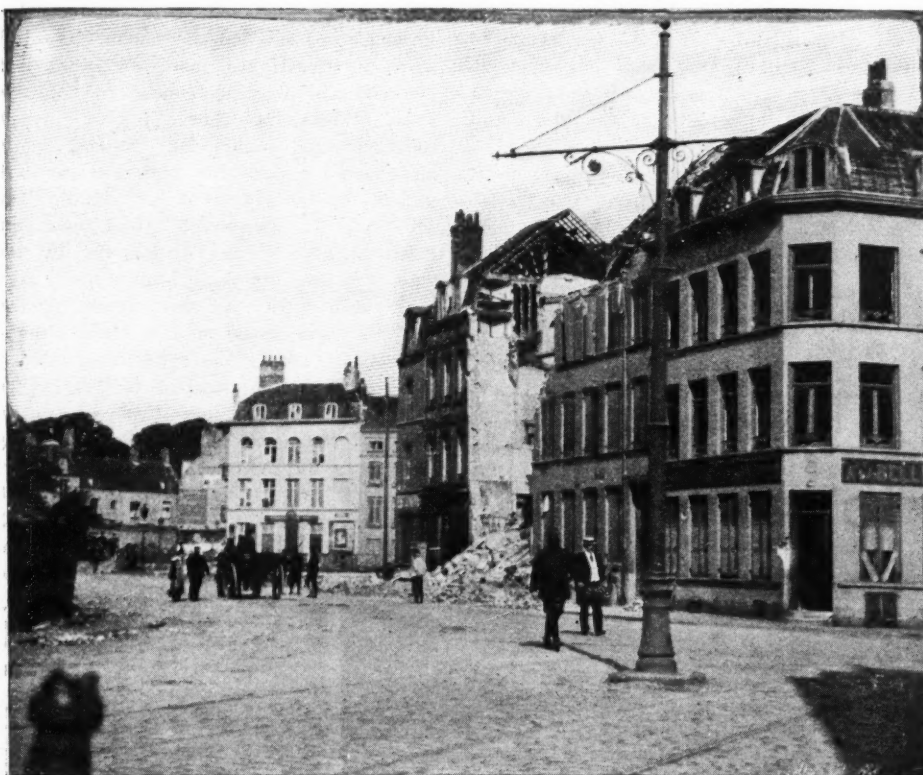
Dear reader, you know something of the horrors of war from the newspapers, you have seen pictures of the dead strewn

about on the battlefield, and you have read stories of individual bravery, but you have not the faintest conception of one's innermost feelings when he is about to face certain death. And that is what it seemed to me, certain death! This was only a bombardment mind you, a bombardment that a hardened soldier would laugh at, no doubt, but to me it was all the perils of a great war concentrated. It was my first experience under fire. Frankly, I gave up all hope of getting through alive. Perhaps I would only be wounded—horribly mangled as I had seen so many poor wretches brought into the Paris hospitals. And a sudden nausea overwhelmed me.

Limp and trembling, I pushed my little car to its limit, expecting any minute to have a shell land in front of the car and blow me into a thousand particles. A few stragglers were coming from the city and regarded our squad with amazement. A shell exploded over to the left of us as we raced on. In front of the station we lined up our ten cars in a row, and left our motors running.

The program was for the first car in line to start out following the explosion of the next shell, seek the place it struck and assist in getting out the wounded; this done, it was to return and take up a position at the other end of the row. I was seventh in line. I prayed that the Germans would run short of ammunition before my turn came. Intervals between shells continued to increase, and each succeeding seemed louder—they were creeping nearer the station. The detonations were indescribable. If you ever have been on your piazza when lightning struck a shade tree directly in front of you, multiply this noise by a hundred and you will have but a faint idea of what an exploding "38" sounds like. It was as though the whole universe stood still for minutes after one of these awful crashes, and the deathlike silence following was broken only by the ugly hiss of flying fragments.

The number of cars between me and my turn dwindled. Because of the in-



Cafe Blanche, struck by a shell in the attack on Dunkerque in June, 1915



Street in Nieuport, taken from a first aid post. The writer ducked into the ruined house on the left to escape a shell

creasing time between explosions, the suspense was terrible. Ages passed. And then, when all my nerve but the tiniest shred was gone, the master-crash of all came. I shot out of the station yard as though I had been blown by the shell. I turned corners on two wheels, bumped over glass, bricks and all manner of debris. On one narrow street an iron picket fence had been blown out onto the pavement. There was barely room to pass without impaling my tires on the spikes. At another place I had to turn back where almost an entire building had been thrown into the street. At top speed I skirted the canal, hurled through Place de la Republique, thundered along the Rue l'Eglise but I heard no cries for help. The city was deserted. Not a sound but the whirr of my car.

Time was drawing near for another shell, so I sped back to the station. On all that wild ride through the stricken city I saw only one soul; he was an old man with a white face, and he looked almost as scared as I was. He was letting himself down into a bombproof cellar with a rope, and was making a painfully slow job of it. I wanted to yell, "Jump, you old fool, jump!" but I was in too much of a hurry.

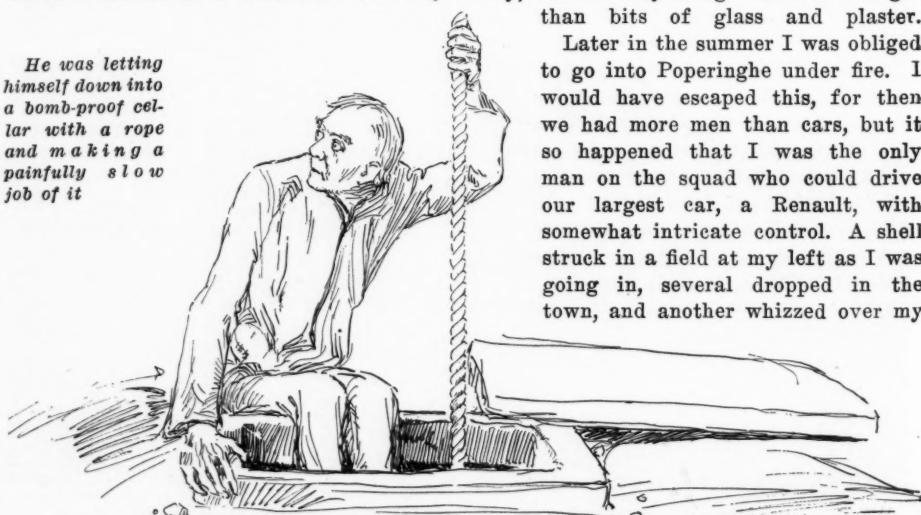
The day dragged on and the shells were getting nearer and nearer the station. We were well aware that the Germans would likely to wreck it. And I was pretty sure they were going to wreck it. Better to be working out through the city than waiting there, dumbly, helplessly, for the inevitable to happen. Yet, in spite of that, every trip I made was more trying than the one preceding. If I was to be hit, I wanted to be hit in company of friends. Three or four of the boys were at the station all the time. In the city one had to work alone. In justice to the other men, however, I must say that they maintained a cool indifference. A few were

actually enthusiastic. If they were nervous, they exhibited no signs of it. But I was sick of everything and made no attempt to conceal my feelings.

It was a terrible, nerve-racking day. We pulled victims from wreckage before the dust and smoke had settled. Many were dead when recovered, others didn't live to reach a hospital. Our escape from death and injury was miraculous. Fragments of shell, still hot, were picked up near the cars in the station yard. Time and again the boys had been on the very spot where shells fell a few minutes later. During a lull in the firing at noon we had gone over to the Cafe Blanche, two squares from the station, for refreshment. About two o'clock three of the men proposed another visit to the cafe, but thought better of it. In 5 minutes a shell struck squarely in the middle of the place and effectually removed it from existence.

The bombardment did not cease until six in the evening and by that time thirty-six of those gigantic missiles had been thrown into the city, most of them landing within a radius of a mile from the very

He was letting himself down into a bomb-proof cellar with a rope and making a painfully slow job of it



heart of it. One, in fact, tore a gaping hole in the pavement of the Place Jean Bart, within 40 feet of the statue that marked the center of Dunkerque. Here and there was a great, jagged hole in a row of buildings, and the streets were littered with broken glass. Scarcely a whole pane was left in the entire city.

The experience left me with my nerves pretty much unraveled. That the other men were somewhat unstrung that evening was evident when our ponderous front door slammed in the wind, for they all started in their chairs and then heaved a prodigious sigh of relief as soon as they realized it was not a shell. One of the boys spilled a stack of Victrola records from the mantel shelf; they fell with a clatter and he was promptly set upon and berated for his carelessness.

So much for my first taste of shell fire. Subsequently I experienced other bombardments over in Belgium, or Flanders, where we spent most of the summer, and I didn't like them any better. Once I had a call to Nieuport, right on the line, while the road leading to it was being shelled. When I started I didn't know what I was getting into. Cannonading was pretty heavy, to be sure; it always is that near the lines and I thought little of it until, as I was carefully picking my way over a rough bit of exposed road, the sou-chef sitting beside me suggested, casually, "Better speed up a bit, they're shelling this road." I followed his suggestion, and with dispatch.

The shells were coming into the town mighty lively, too, though of smaller calibre than used on Dunkerque—probably "105's," or about a 4-inch shell. While waiting in front of the post secour for a stretcher case a shell burst so close that I imagined I smelled the smoke. I didn't stop to investigate just how close, but ducked into a ruined house to think it over. While in there I got myself together and concluded I had better have some excuse for such antics, so I picked up a shattered ax handle and sauntered out as though I had been souvenir hunting. That ax handle, by the way, was the only thing I could find larger than bits of glass and plaster.

Later in the summer I was obliged to go into Poperinghe under fire. I would have escaped this, for then we had more men than cars, but it so happened that I was the only man on the squad who could drive our largest car, a Renault, with somewhat intricate control. A shell struck in a field at my left as I was going in, several dropped in the town, and another whizzed over my

head on the way out. My sensations were just as pleasant as those I experienced at Dunkerque.

So much for what I regarded as very close shaves. Other men on our squad had narrower squeaks than I did, but I had had quite enough of war, thank you. When time drew near for me to leave for Paris and home I was about the most pleased person in all France. I never want to hear another gun. In fact, the first thing I did on my arrival home was to give my shotgun away. I don't know what I am going to do on the Fourth of July.

MOTOR CORPS FOR PORTLAND

Portland, Ore., Feb. 1.—Motor owners of Portland, under the leadership of Captain Frank P. Tebbetts, of the machine gun company of the Oregon national guard, have formed a machine gun company with motor cars as the mode of transportation. The owners are to be enlisted as members of the company, and during the summer months of the year will turn out once a week on a run of 20 miles to Clackamas, where field practice with the machine guns and the trucks will be a part of the efficiency program. Captain Tebbetts' plans call for the use of fourteen light and heavy trucks. This will offer transportation for the entire unit. The plans further include the working out of problems of speed and mileage. These can be studied admirably in the country around Portland, where is found about every variety of road that the topography of any war might offer.

ARMORED CARS FOR N. Y. STATE

New York, Feb. 1.—The armored motor car squadron, to be presented to the state of New York by a group of prominent men, is expected to be ready by April. It will consist of eight armored battle and cruiser cars, including an officers' car, tool car, tank car and emergency car. This will be the first armored car squadron in America, and since the plans for the enlargement of the U. S. army call for motor cars of a similar type, it is expected that this will be a stimulus to the national equipment.

The donors of the cars are E. H. Gary, Henry C. Frick, Robert M. Thompson, Dudley Olcott, James N. Wallace and Harry G. Montgomery. In all the plans for the squadron no expense has been spared. The steel for the cars is the standard United States .3-inch bullet-proof gunshield metal. The frames are built by the American Bridge Co., and the chassis include two Macks, two Locomobiles, two Whites and two Jeffery quads.

The commanding officer's car will be built especially for speed. Full electrical equipment is carried and a searchlight on each car will sink into a box when not in use. In order to provide for quick maneuvering the cars will be able to move backward at full speed as well as forward. Their operation will be watched with interest by army officers.

Dixie Tourists Spurn Chattanooga

Take Detour Route to Huntsville to Avoid Bad Road from Nashville

CHATTANOOGA, Tenn., Jan. 28.—The fact that at the present time Dixie highway tourists are leaving that highway at Shelbyville, Tenn., and going south by way of Huntsville, Ala., is becoming a source of much alarm to those who want Chattanooga to derive the benefit expected from the routing of the road through this city. There is much fear that it may become a habit for travelers to use the Huntsville route, if the situation is not quickly changed by the improvement of the Nashville-Chattanooga link, particularly that part running into this city.

The recent announcement by Judge D. W. Rider, of Elizabethtown, Ky., president of the Louisville and Nashville division of the association, that only 43.4 out of 203.2 miles remains to be resurfaced and that \$95,000 is available for this purpose has called attention to the fact that tourists will be using the western branch in large numbers shortly. It is pointed out that the Cumberland mountain is a handicap to the bringing in of tourists and that road construction must overcome this. The consideration of these things, it is believed, will inspire the county court to direct the construction of a good highway to approach the city.

The road from Nashville to Shelbyville is now in good shape. Bedford county is preparing to build a good road to the Moore county line and the latter county will have its 2-mile link constructed shortly. Franklin county has voted \$300,000 for building a road to Monteagle and Marion county has just sold bonds for the 70-mile link to meet the road which it is proposed shall be built in Hamilton county, of which Chattanooga is the county-seat.

From Nashville to Huntsville, Ala., is 117 miles. From this place to Gadsden is 73 miles; Gadsden to Rome is 75.6 miles; the route from Rome to Atlanta is over the Forrest highway and is 71.1 miles long. At this city, the western branch of the Dixie highway is again found. Tourists to Chattanooga from the north are being routed from Nashville to Huntsville, Ala., turning toward Chattanooga at the latter point.

CAR SERVICE BY TELEPHONE

Buffalo, N. Y., Feb. 2.—Ralph E. Brown, secretary and sales manager of the A. W. Haile Motor Co., Studebaker distributor in western New York, is just putting the finishing touches on a service plan which is unique in its possibilities and in its advertising value. The plan will be in operation March 1.

The plan is designed to give any owner of any car quick action in case of trouble on the road, and it requires the placing

and use of some 400 telephones located at intervals of not more than 2 miles on all the principal roads in western New York stretching from Rochester west to Buffalo.

These telephones have been contracted for at a flat rate of \$13 each, and all Studebaker dealers are required, if they enter the project, to sign up for at least ten 'phones. Each 'phone is in a locked box with a lithographed sign over it bearing the words "Studebaker Service."

Keys to these boxes are rented to any car owner, regardless of the make of car he is driving, at a uniform rate of 50 cents a year. The 'phones are regularly connected with the telephone company's central exchanges and may be used for any purpose and at any time for any distance. For calls within a radius of 5 miles of the 'phone used there is no charge. Regular charges, through a coin-in-the-slot arrangement, must be paid for greater distances.

Inside each of the boxes there is a telephone directory and also a second directory which gives the location of the nearest Studebaker service station. The rental which is charged for the keys reverts to the Haile company for administration expenses. Already a sufficient number of dealers have signed for 'phones to ensure the placing of 250 on the roads, and it is expected that by March 1 the number will be increased to 400.

MOTOR REPAIR SHOP ON WHEELS

Detroit, Mich., Feb. 2.—Word has been received at the national headquarters of the Lincoln Highway Association in this city that two enterprising garagemen plan a novel method of getting business during the coming year. Knowing that the most business is to be had where the greatest number of cars travel, they have determined upon the Lincoln highway as the seat of the operations. They mean to equip a 4½-ton truck as a traveling shop and stay on the route of the Lincoln highway between New York and San Francisco all during the summer. They will carry a lathe, drill press, forge, welding outfit and, in fact, everything needed for making all repairs.

PIKE'S PEAK ROAD MEETING

St. Joseph, Mo., Feb. 1.—Delegates are arriving here today for the third annual convention of the Pike's Peak Ocean-to-Ocean Highway Association to be held tomorrow. The convention will have for its definite work the organization of the route from Indianapolis west to Salt Lake City. Action may be taken to extend it both eastward and westward from these points.

Chicago Show Surpasses All Former Western Records

Attendance Approximately 260,000—Exhibitors Will Receive Rebates Nearly to Cover Cost of Space Occupied

CHICAGO, Jan. 29—It has become customary each year to describe each succeeding motor car show at Chicago as the greatest of its kind ever staged outside New York. With the closing of the sixteenth annual exhibition tonight, it becomes necessary to repeat the assertions of past years, that the Coliseum has closed its doors on an exhibition at which all previous records for attendance had been broken.

As nearly as could be estimated by Manager Samuel A. Miles, 260,000 persons entered the Coliseum during the week. This is about 8,000 greater than New York attendance. Of these, 30,000 were visitors from out of town and included dealers, salesmen, owners and prospective owners. There were 3,500 exhibitors and salesmen; there were 3,000 dealers from all parts of the United States and Canada; even one from South Africa.

Based on the attendance figures, it is estimated that the exhibitors will receive on rebate from the ticket sales enough to pay for the rental of their space. The increase in attendance is about 22 per cent over last year's figure, according to Miles. Last year the show paid back to exhibitors who are members of the National Chamber of Commerce and to the Motor and Accessory Manufacturers over 80 per cent of the amount paid for space rental. The indications are this year that they will receive nearly, if not quite, 100 per cent.

Surpassed Former Records

From a business standpoint, the exhibitors are almost a unit in agreeing that the show surpassed any previous records set up by earlier events at Chicago. Most of them have found, also, that it was a better business show than the recent New York exhibition. This is the opinion of accessory exhibitors as well as car exhibitors.

In accounting for the statements that when the sales results are checked up, the Windy City show will outshine that of Gotham, a number of theories are given. It is the belief of most that the territory from which Chicago draws its dealer attendance is less restricted than that of New York, and, consequently, the dealers at the Chicago show represent a greater buying territory. Add to this the fact that many dealers visit the New York show for a general view of the offerings and have come to a decision and are ready to close at Chicago. A rather unique explanation is that given by some of the accessory men that dealers and jobbers go to New York for a good time and come to Chicago for business.

The unexpectedly large amount of

wholesale business that was consummated at the show has been interpreted by Harry W. Ford, president of the Saxon Motor Car Co., to mean that the seasonal aspect of the motor car business is giving way, in view of the fact that the car has become a vehicle of year-round utility and dealers are beginning to recognize the importance of carrying a larger stock of cars for the spring demand.

Hugh Chalmers, president of the Chalmers company, says that the general buying season will start much earlier in the year than formerly. This, he believes, is indicated by the buying mood evidenced by both dealers and respective owners.

Sales Manager Rueschaw, of the Reo, considers the fact that many dealers are from eastern points, New York's own territory, is significant of the general attitude of dealers toward the Chicago exhibition as a business proposition.

National Prosperity a Factor

That the belief in national prosperity as a lasting factor of the country's business is evidenced by the attendance and sales records at Chicago, is the opinion of J. Walter Drake, president of the Hupp Motor Car Corp.

The Kissel Kar people found that not only in numbers did the influx of dealers surpass that of previous years, but also in inclination and ability to take larger allotments of cars than ever before. This is held to be the reflection of a feeling in all parts of the United States of certain prosperity for 1916.

Factory business on the part of the Cadillac company was not a subject of discussion this week, as the entire product has been contracted for, but the distributors report a greater number of sales and greater number of prospects than ever before.

Business at the show not only came up to but exceeded the expectations of the Hudson people, from a retail and a wholesale standpoint. This is considered a criterion of the country's prosperity, because when people have money to spend for cars they have money to expend generously for everything that goes to make life more pleasant.

Show business for the Paige-Detroit Motor Car Co. has been unusually large. This is in line with the sales throughout the month of January, which, according to Sales Manager Krohn, are a little better than twice the volume of the corresponding month last year.

At the Maxwell booth, sales and general interest were reported better than at any previous show. Packard's output for the season has been contracted for, but the consumer business was reported as

most satisfactory. Winton people described the show as the best in their experience.

On the basis of show business and that for the preceding month, Buick officials prophesy an era of continued prosperity. Studebaker sales since the first of the year and particularly during the show lead to a similar forecast. According to Sales Manager Warner, of the Oakland, the interest exhibited and the sales made put the Chicago show in the first rank as a business exhibition.

Overland reports an unprecedented week in the points of general interest and sales. At the Apperson space, it is stated that fourteen times as many sales were made at the show this year as there were last year. Haynes has an equally enthusiastic report. National found its business considerably more than was expected.

Sales Manager Stalnaker, of the Pathfinder, reports the best week of his experience. J. J. Cole, president of the Cole Motor Car Co., characterizes the week just closed as the greatest motor car show in the history of the industry.

F. E. Mosecovics, of the Marmon company, announced a private show at the local branch, where the new Marmon would be explained and demonstrated. This announcement was made necessary by the congestion of interested visitors in the booth at the Coliseum. Neil Vandervoort, of the Moline, stated that results this year would be far and away ahead of those from previous exhibitions.

BUFFALO SHOW BOOMS SALES

Buffalo, N. Y., Jan. 31—If all the money in Buffalo banks were equally distributed, every man, woman and child in the city could buy a motor car. This will give some slight idea of the purchasing power of the city insofar as the motor car industry is concerned. The per capita wealth of the city, according to the latest figures is \$635; the money in savings banks alone would give each individual \$212. An equal distribution of money in all banks throughout the United States would give a per capita wealth of only \$50.

For this reason, and for many others, the dealers who exhibited their wares all last week in the Broadway Auditorium under the auspices of the Buffalo Automobile Dealers' Association are jubilant for the immediate future. It is pointed out by motor car dealers, by bankers and by others high in the industrial affairs of the city that 1916 promises to be a banner year.

The show which closed Saturday night was the fourteenth annual affair and was

staged by the dealers' association which is composed of some twenty-eight members who represent the cream of the industry in the city. It was more a distributor's show than was the case in Baltimore though the amount of retail business done was heavy. It was strictly a business show and was very largely attended by dealers from western New York, many of whom brought their prospects with them and closed sales on the floor.

PORTLAND SHOW A SUCCESS

Portland, Ore., Jan. 28—Portland's seventh annual motor show opened at the Armory January 24, with a large and interested concourse of northwest enthusiasts from all sections of Oregon and Washington.

Although the weather was most inclement, being the worst known on the coast for the past 10 years, exhibitors were unanimous in declaring that the show was a big success and that more actual business was transacted during the week than at any previous show held in the Rose City.

The reasons for the larger attendance this year and the increase in actual business done were many. The lowering in price of the established makes of cars, the extensive road program which has already been successfully carried out in Oregon, and which includes the famous Columbia Highway which has been a stimulus to motoring, together with the special rates put in effect by the railway companies and the generally prosperous condition of the state were the prime reasons for the splendid showing made by the dealers.

HOLD TRACTOR SHOWS

Chicago, Ill., Feb. 1—For the first time agricultural manufacturers are going to exhibit during the same week as the motor shows in Minneapolis and Kansas City. At Minneapolis a tractor exposition is be-

ing held this week across the street from Frederick Murphy's Mitchell agency.

In Kansas City the exhibition next week is known as the first annual tractor show and will be staged under a huge tent placed in the Union station plaza. In this tent, 365 feet long and 75 feet wide, are twenty-six exhibition spaces all of which have already been taken and it is expected that thirty different makes of farm tractors will be on exhibition. In addition there will be a good exhibit of accessories for tractors. The tractor show is being staged by the tractor club, which anticipates a large attendance as inquiries from interested farmers in Iowa, Nebraska, Missouri, Kansas and Oklahoma have been coming through the mails ever since it was known that an exhibition of this nature was to be staged.

WILMINGTON TALKS TRUCK SHOW

Wilmington, Del., Jan. 31—So elated over the success of Wilmington's second annual motor show, which was held the week of January 17, are many of the motor car dealers here that they are considering the advisability of having a truck show. The fact that it would be difficult to find a suitable building, conveniently located, is the chief concern. There is some thought of buying a large temporary tabernacle, in which evangelistic meetings are being held, and using it after the evangelistic campaign closes, the latter part of next month.

MOTOR SHOW IN ALABAMA

Montgomery, Ala., Jan. 28—Montgomery's first motor car and accessory show, which opened Tuesday morning and was concluded last night, was an unqualified success and is believed by dealers to have given a great impetus to the trade in this section. The attendance reached 25,000 and included dealers and buyers from all parts of Alabama.

One of the events that made the show notable was the organization of the Alabama Automobile Dealers' Association. Fifty dealers attended a meeting held at the Exchange Hotel, where a permanent organization was formed and constitution and by-laws adopted. The officers are as follows: R. J. Barr, Troy, president; L. G. Adams, Mobile, vice-president; W. B. Smith, Birmingham, second vice-president; J. C. Salter, Montgomery, secretary; L. B. Pake, Montgomery, treasurer.

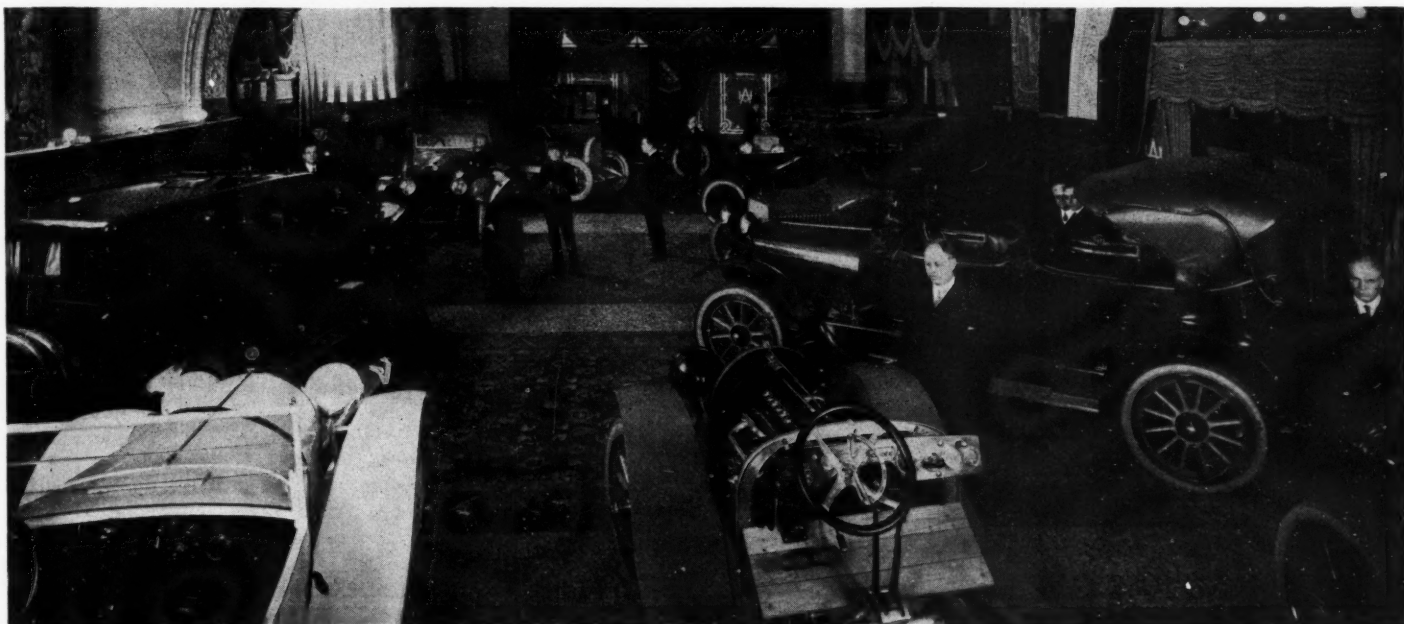
DEALERS' SHOW AT COLUMBUS

Columbus, O., Jan. 31—The dealers motor show of Columbus opened at the Memorial Hall Saturday to continue for one week. The opening was most auspicious and the crowd of about 8,000, which attended the first night, presages a very successful exhibition. It is the second of the two shows to be held in Columbus, the first show being under the auspices of the Columbus Automobile Club.

The present show is given directly by the Columbus Automobile Show Co., of which F. E. Avery is chairman of the committee. In all, twenty-five dealers, showing approximately fifty cars, took part. There was also a large number of accessories shown.

MAY REVIVE TRUCK SHOW

Chicago, Feb. 1—During the Chicago motor show last week, a movement was started looking towards the possibility of a motor truck show to be held in Chicago next year during the week of the passenger car show. Six or seven different representative manufacturers met and formally discussed the question and a committee of one was appointed to take up with the truck manufacturers their views on such an exposition. When the pulse of the truck makers has been felt, more definite plans will be announced.



View of the first motor car salon held in Chicago at the Auditorium Hotel during show week. This bids fair to become an annual function

Enemy's Shells Not the Only Menace of War Trucks

Lack of Protection Against Collision and Resultant Bumping Make Hundreds of Vehicles Hors du Combat

PARIS, Jan. 2.—The most obvious defect of motor trucks put into military service is the lack of protection against collision and as a result about 50 per cent of the truck casualties are caused by trucks bumping into the machine ahead, when operating in convoy formation. Usually the officer in charge precedes the convoy in a light touring car, and unless he is a really experienced man, he will set too fast a pace. Each driver tries to keep as close as possible to the man ahead, with the result that when a sudden stop has to be made, radiators are smashed in and sometimes damage is done as far back as the third cylinder.

It is not every officer who is capable of handling a big convoy in a satisfactory manner—maintaining a reasonable average, insisting on the regulation space between each truck, and at the same time being prepared if any man falls out owing to mechanical trouble. The officer who knows his business puts a skilled driver on No. 1 truck—a man who can differentiate between 12 and 14 miles an hour—and a good mechanic on the last unit of the convoy. As each driver is forbidden to pass the truck ahead, the correct average can be relied on whether the officer remains in front or falls behind; if there is a breakdown the last man is often able to give assistance, which will save hours, in a few minutes.

Velie Trucks Well Protected

Some of the American trucks sent into France looked as if they had all the radiator protection that could be desired. Packards, for instance, have a very substantial buffer, and the Pierce trucks are also well protected, but for present army conditions even these good examples are ineffective. It now has become the practice to fit locomotive-type spring buffers front and rear of all trucks going into active service in France. The Velie trucks, which are among the latest to be adopted by the French

army, have a most formidable set of buffers and bars set out a couple of feet in front of the radiator.

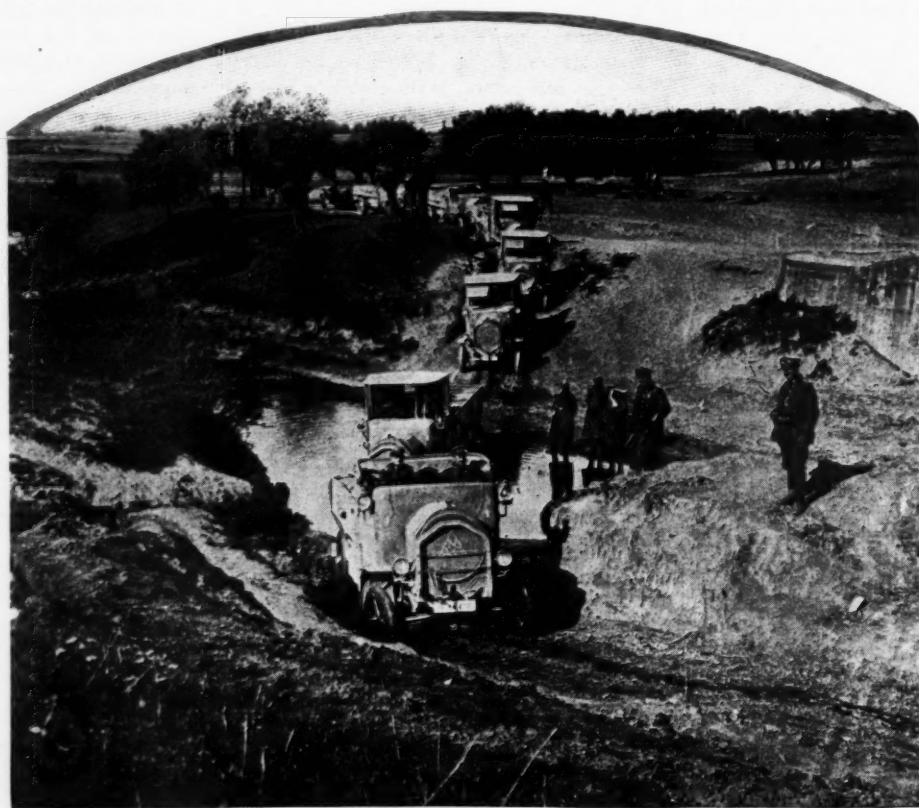
The protection consists of a very heavy steel gate, the full height of the radiator, with powerful coil springs back of it. In order to crank, or indeed to get near the radiator, the gate has to be opened and has hinges for this purpose. The design is so clumsy and the construction so heavy, that it is certain no engineer would have consented to fit such a device, had it been proposed at the factory. The officers here

actly the same height as the front bumper. In case of collision the two bumpers come together. It should be pointed out that these safeguards are not necessary for ordinary commercial service; they were not even found necessary in the army tests prior to the war, for then skilled drivers were always employed.

Solid Tires Short Lived

Generally solid tires on trucks working in the north of France do not average more than 5,000 miles. This figure is obtained from records of trucks using tires of a

size considered adequate in civilian service. The shorter life is due to the more strenuous conditions under which the trucks have to operate. No matter how good the service, there is always a certain amount of speeding; English drivers are as great sinners in this respect as the French. In the northern parts of France most of the roads are granite paved, with a macadam or dirt strip at each side. When traffic is heavy the right-hand wheels are constantly slipping from the paved portion to the dirt strip, and back again, this series of jumps causing the tires to chip away laterally. Sections of the tire also



Cars in the German motor corps find some rough going in Russian Poland

maintain that they need all this protection.

The type of guard on the level of the frame members, as used by Packard and a few others, is generally useless, for the regulation army body has a rear overhang which will pass above the guard into the center of the radiator. Some time ago the White trucks were fitted with a stout steel bar carried in hangers riveted to and projecting from the front of the frame members. The bar was ahead of everything and a few inches above the bottom of the radiator. This was not found to be sufficiently effective and now the bumper is an I-section steel member as heavy as the frame members and placed level with the middle of the radiator. At the rear of the truck is a lighter transverse bumper, with coil springs back of it, placed at ex-

loosen from the rim, and when there has been a loosening up in two or three places, the whole tire is liable to come away. This appears to be due to bouncing of the wheel on the road; when driving fast the wheel strikes the ground at intervals with considerable force, and these repeated blows loosen the rubber from the base. It is found that this is more common with front than with rear wheels.

Another source of tire trouble, which was known to users before the war, but has become more accentuated since, is due to arched roads. It is obvious that with a truck running on one side of a highly crowned road the full width of the tread cannot be in contact with the road surface, and the wider the tire the smaller the proportion in contact. This throws an exces-



Drivers of French motor ambulances wearing masks to protect them from German gas bombs



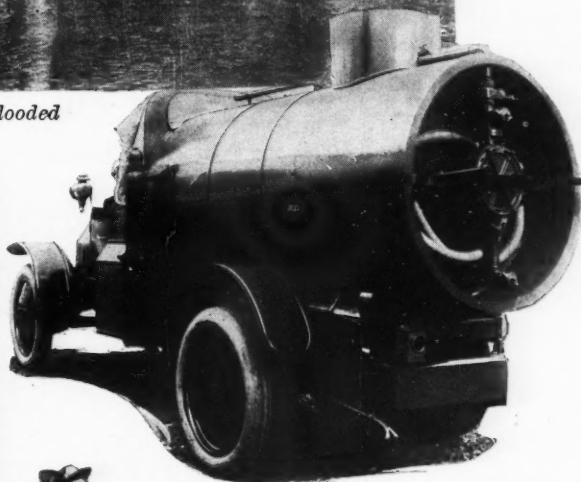
British ambulance corps operating with French troops at Salonika



Delauney-Belleville scout car being rescued from flooded road by Panhard repair truck



French 120-millimeter long gun waiting by the roadside for a change of position. These great field pieces are hauled by Latel four-wheel-drive tractors.



Bianchi gasoline wagon used by the Italian army



Wounded members of the Italian bicycle corps being carried to hospital by Bianchi truck.



Germans in Serbia unloading provisions

sive load on one portion of the tire, or on the inner tire when duals are used, and causes rapid wear. The evil is lessened on those trucks having chain drive with slightly toed in wheels, as is common with the front wheels of passenger cars. The evil has been recognized for a long time and attempts have been made to construct a type of transmission allowing the wheels to accommodate themselves to the arch of the road. Also the latest road engineering practice is to make road surfaces as flat as possible consistent with drainage. The war has only served to emphasize the need for attention to this matter. Where worm, bevel and chain-drive trucks are working together it has been possible to make interesting comparisons on this question of tire wear.

The war is proving more strenuous than

the severe tests to which some of the manufacturers submit their trucks at home. As an instance, a high-grade American worm-drive truck is giving trouble owing to the breakage of differential housings. This is a good truck, which before being put on the market was given a very thorough try-out in the middle west and the west, without any defects being revealed. However, the roughly paved roads of northern France, together doubtless with some overloading and some speeding, are causing the housings to crack, and the maker is replacing them free of cost. Closely examined, this is found to be a case of faulty design, but is a fault which American dirt roads and cross-country conditions could not reveal.

There have been some other cases of axle housings failing, but these have been

traced to a heavy load shifting to the right-hand side of the truck. Loads of shells are particularly liable to slip in this way, and as the right-hand side gets much more pounding than the left, it is not surprising that axles sometimes fail.

Weak Parts Are Supplied

Manufacturers all over the world who had old models or units in stock have been tempted to get rid of them in the various armies. These cases are now coming to light. One high-class firm used a certain number of touring car crankcases in order to finish a series. These were too weak for truck service, with the result that all the front hangers snapped and the French repair shops have had to fit these trucks with a steel member forming a brace under the front end of the crankcase. The policy of this company cannot be considered a wise one. Had it been a French company of equal standing, there would have been plenty of people to excuse or explain away the incident—some French firms have so many interested boosters that the knockers are never heard. But being an American firm the bare statement goes round that X— crankcase hangers break off. There is nobody to explain, and X—, who makes one of the best trucks in America, is apt to be rated with the firm making one of the worst.

All American manufacturers are at a disadvantage owing to the absence of really skilled men, or men with lengthy experience of their particular make. At home real service is given users, and every manufacturer is interested in seeing that the user of his truck is getting the best out of them. In the war zone there can be no real service, and even if the service man were on the spot he would not be allowed to follow up his own trucks.

One case with which I am acquainted is interesting. The Pierce-Arrow company has about thirty 5-ton trucks in armored car service in Northern France. This is the most strenuous service on the front, for



Frozen meat being unloaded from ships and transported to British camp at Salonica by motor truck

half the cars are overloaded all the time, and all of them have to operate very close to the German trenches. This battery is in charge of an officer who knows all there is to be known about Pierce trucks and who gives them all the attention that could be obtained from a service man at home. The result is that at the end of 6 months' active service in France, preceded by several months' service in England, not a single order has been sent in to the permanent store department. The only consumable stores that have been used are brake liners, lock washers, carburetor floats and needles, rear lamps, etc. Two men, one of whom is only a driver, are sufficient to attend to all the repair work. In the same battery ten mechanics are required to keep the officers' touring cars and the dispatch riders' motorcycles in proper order. In other sections of the army, operating in the same district, constant reports are being received of burned out bearings on Pierce trucks. Inquiry has shown that in every case this is due to the use of unsuitable—not poor quality—lubricating oil for this type of motor.

Trouble With Carbureters

Carburetor settings found right in America are very rarely satisfactory here, owing to the different grade of gasoline used and changed climatic conditions. If the trucks pass through the hands of a tester in Europe, this trouble is considerably diminished; yet there are hundreds of American trucks operating extravagantly in Europe owing to lack of carburetor adjustment. As a general rule American trucks have bigger motors and will do a lot more top gear work than those of European construction, but much of this advantage is lost, owing to indifferent carburetor settings.

One important repair depot finds that magnetos cannot be relied on for more than 6 months' average under war conditions. At the end of that time they have lost much of their magnetism and various screws have begun to work loose. The repair depot in question finds it necessary to remove and carefully examine all truck magnetos every 6 months. The same trouble has been observed at various times on visits to touring car repair depots, but this case of the trucks is the only one on which really reliable data has been obtainable. There is an unusual wear of carburetor needles attributed to the presence of very fine sand in the gasoline. The complaint is heard that differential locks are not sufficiently used; under present conditions they are more than a luxury.

Self-starters are not appreciated. They are to be found on one make of truck used by the French, but they are very rarely in a condition to be used. More often than not the batteries are requisitioned to light a dug-out, or some under officer takes them to light his own quarters. Some of the mechanical transport sections use enormous quantities of dry batteries, but the current is used for lighting the men's quarters and dug-outs and not for exploding

charges in the cylinders. Muscular energy is a rather cheap commodity.

As army regulations call for two drivers on each truck, a self-starter is certainly a luxury. Controls should be simplified for military service. With two ignitions, spark and throttle levers, extra air lever, electric light, electric self-starter, and gasoline and lubricating oil gauges, there is enough to keep the average green driver worried for at least 12 months. At least one truck has the whole of this equipment. The ideal is fixed ignition, with magneto only, and accelerator pedal. A lever on the dash should regulate minimum throttle opening and cut off the ignition when fully closed. The use of a motor governor is preferable; European manufacturers had little use for the governor before the war, but they have changed their views since.

INVENTS NON-SKID PAVEMENT

San Francisco, Cal., Feb. 1—D. J. McCoy, street superintendent, who has a great fear of running down some child with his motor car, has invented what he thinks is a non-skid pavement. He challenges the most careless driver to make his car skid even during a rain on this pavement. The

pavement is built with a layer of crushed rock rolled into the hot asphalt. Rocks, large enough to go through a 2-inch screen, are used and when packed down into the surfacing by the roller, show through, giving the skidless surface. This method is so satisfactory that merchants have petitioned the city to pave many streets in this manner.

MOTORISTS' BAGGAGE CARRIED FREE

Atlanta, Ga., Jan. 31—A novel practice adopted by a number of motorists was described, recently, in a complaint filed by the Central of Georgia Railway on behalf of itself and other railroads in the state with the state railroad commission. The railroad complained that motorists frequently bought tickets on which they had their baggage checked to their destinations. Making the trip themselves in machine, they would return their tickets for redemption so that the railroad company carried the baggage without charge. The commission acted on this by making a ruling that under these circumstances the railroad could charge an amount not exceeding double the regular excess baggage rate.

Market for Cars in Central America Arabia Also Wants Jitney Buses and Spain Endorses American Tires

WASHINGTON, D. C., Feb. 1—A fine market for American made motor vehicles is to be found in the countries of Central America, in the opinion of Gerard Harris, special agent of the department of commerce, who has been making an investigation of this subject during a tour of these countries. Mr. Harris' idea is that manufacturers who seek to develop the Central American territory should not expect immediate results, due to the need for encouraging better highways there, but he believes a fair opening is at hand and that, as motor vehicle salesmen seek to introduce their cars, this alone will lead to marked activity in road building.

Guatemala has people of wealth who are buying cars, and who are encouraging road building in that country, says Mr. Harris, and he points out that the road between San Lorenzo and Tegucigalpa, the "Carretera del Sur," is one of the finest highways in all Central America. It is 80 miles long and was made with American machinery. Costa Rica has some of the best roads in Central America, and several growing towns which should offer opportunities for American motor vehicle salesmen, Mr. Harris thinks.

In Santiago, Cuba, and the consular district surrounding that city, there is a constantly growing demand for motor cars. Most of the city and suburban roads are of macadam and in good condition. Ninety per cent of the cars in use there are of American manufacture, and the demand is

for a low, medium-priced car, strongly built, and with a serviceable hood for protection against rains and the sun.

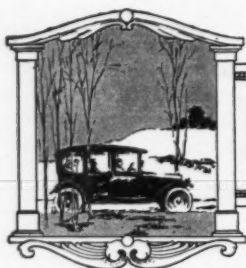
Freight rates to Santiago are said to be so reasonable, and the financial arrangements so satisfactory as to make that market an inviting one from every standpoint for the American motor car manufacturer.

The Knell of the Camel

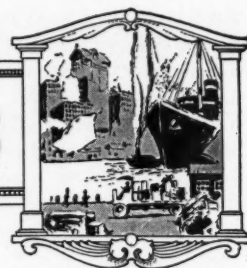
Aden, in far off Arabia, is interested in the jitney bus. This fact, together with the rapid replacing of horse-drawn carriages with motor cars for carrying passengers, would seem to offer opportunities for jitney bus manufacturers, according to government reports.

Spain also is interested in American tires. Sales already made by American manufacturers in Seville have proved so satisfactory that additional orders are being sent and still more are probable.

Reports from Johannesburg, British South Africa, are that it offers attractive opportunities for American built cars. Already nearly every popular-priced American car is represented in Johannesburg and nearby territory. The United States is ranking with the United Kingdom, or did before the war began, in its sales of cars to British South Africa. Now, it outranks the United Kingdom. The United States was the most prominent source of supply of motor spirits to South Africa in 1914, the Dutch East Indies ranking second.



EDITORIAL PERSPECTIVES



Motor Car Manufacturers and Aviation

It is significant that so many of the motor car clan are thinking and talking and entering the aviation field. Although little of the real activity has come to light, many well-known car builders and motor makers are developing aviation motors that bid fair to eclipse anything yet produced to propel air craft.

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WHAT is back of this movement which seems all at once to be assuming large proportions?

Is it not attributable to several things?

Aside from the attention which the serviceability and dependability of the war air craft have compelled as a result of their activities in the European conflict, it seems but natural that the manufacturers of motor car engines should turn to the aviation field and help to give to flying some of the knowledge of gasoline power developers that they have gained through a number of years of experience.

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THE most potent reason for the quite general interest in aviation among motor makers is that aeroplanes have become much safer than they used to be. It has taken only the period of the war to prove this to anyone who has studied the situation. Aviation in this country was dealt some heavy blows by the daredevilry of those who were wont to give exhibitions for the public. The long list of casualties from flying instilled in the American people the idea that aeroplanes were not safe and

dependable, and they refused to help their development or to take a great deal of interest in them.

But gradually the national idea of the air craft is changing, due to their remarkable performances abroad, and we are fast coming to realize their great utility value, not only as an aid to national defense but also as a commercial factor. Flights from London to Paris are a common thing now; many kinds of maneuvering heretofore thought impossible have done their part to show what the flying machine can do.

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IT is because the motor makers and others have suddenly awakened to the great possibilities of the aeroplane that they have jumped headlong at it and are preparing to meet the growth of an industry which today is much farther along than was the motor car industry 15 years ago. They see the aeroplane as a factor in rapid mail transportation; they realize that our national defense must depend upon them to a large extent; they see the dawn of the commercialization of flying and they do not intend to be caught napping when the call comes for aeroplane parts and accessories.

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SOME day—perhaps not far away—the aeroplane industry will be on an almost equal basis with the automobile, and the manufacturers should be in a position to make aeroplanes and motor cars.

We are at the threshold of a very interesting period in the world's industrial history.

The Children's Tour

WHY not use the motor car more to supplement the public school in the education of the boys and girls? Can not the midsummer vacation be utilized to greater advantage? Can not the educational tour for boys and girls be staged? The motor car tour for manufacturers: When touring was started 12 years ago it was intended to discover the weakness in cars in order that manufacturers could rapidly push ahead to better construction. This form of tour was continued until 5 years ago, when the popularity of tours waned. Manufacturers had learned all they cared to learn in public tests.

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THE tour for boys and girls: The time is ripe to stage a national tour for the boys and girls, a tour in which the route will lie through historical sections of the country, sections that the boys and girls have been reading about in the school courses. There is no better way to impress on the children the realities of our country. Make the tour perhaps a circuit of the battlefield of the civil war or the revolutionary

war. Instead of making it a mileage tour make it an educational tour. Spend an entire day, perhaps two, in important sections. Do not use the procession idea of the old days, but let each party select its own route to the night stop. Arrange for all to stop at the same place each night.

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THE night stops could be made occasions for lectures on the old battles or on associations connected therewith. These lectures might be on the sites of the now historic struggles. In these days when every mind is turned towards thoughts of national safety and protection it is meet that no opportunity should be allowed to pass that could be utilized to instill greater love of country in the minds of the boys and girls of today, who will be the men and women of tomorrow and the people who will control the destinies of our country in the near future. There is good opportunity for a great national object lesson in the historic tour for the boys and girls.

Uncle Sam at Work

ALTHOUGH the army department at Washington has not been purchasing motor trucks and motor cars in enormous quantities, the department has been working quietly and educating a large number of men up to the requirements of motor transports, a movement which although not generally known is one that deserves hearty support. The department has many of its young men taking courses of 3 months in the different motor truck factories, where these men are learning the finer points of trucks and getting schooled in the sane use of them.

THE present course of 3 months it is expected will be increased to 6 months, and if this is continued, Uncle Sam will be fortifying himself by building up a corps of motor experts. This is one of the surest methods of getting the best out of military motor transports and will guard against the wholesale destruction of motor vehicles such as took place in the early days of the present war when only a small percentage of drivers were competent to handle the machines. More vehicles were put out of commission through ignorant drivers than by the shells of the enemy.

England, Facing Chauffeur Famine, Trains War Drivers

School for Recruits Opened in London Following Protest by Tradesmen— Drastic Anti-Lighting Regulations Enforced

LONDON, Jan. 15—No more motor car drivers can now be enlisted directly into the mechanical transport service of the British army. The shortage of drivers for civilian purposes has become so acute that users have protested and pointed out that the essential trade of the nation is likely to be paralyzed if more skilled drivers are taken off their ordinary jobs and put into the army.

In consequence of this the army has undertaken to train its own drivers and for this purpose has entered into an agreement with the London General Omnibus Co. At the main depot of this concern recruits, many of whom never have previously sat behind a steering wheel, are now being initiated into the mysteries of the internal combustion motor and taught to drive in regulation convoy formation. The omnibus company has all the machinery necessary for this training and ought to be able to turn out efficient men in bigger quantities than is possible by any other group.

It is understood that these recently trained men will be used to dilute the ranks of skilled drivers; thus no formation will be composed entirely of new men, but a certain proportion of old and experienced drivers will be retained in each. No information is allowed to get out regarding the number of men who are being trained in this way, but it is known that the force is considerable.

Cash Saving Effectuated

One result of this scheme will be to a certain cash saving. Specially enlisted drivers, thousands of whom were taken on during the first months of the war, were paid at the rate of 6 shillings per day; the men who are being trained to drive get the ordinary private's pay of 1 shilling 2 pence per day. Making allowance for the cost of training the men and the damage they must do during their initial period as soldier drivers, this will be cheaper than enlisting special men at the higher rate. Earlier in the war the need was too pressing to admit of training men to drive.

Although the general appearance of London has undergone remarkably little change since the outbreak of war, it is evident to any visitor that the city has been depleted of its best drivers. Taxicab drivers in particular are far from being of the same class as before the war. They handle their cabs carefully and are obliged by reason of the police regulations and examinations to know London well, but they massacre their gears mercilessly. It is evident, too, that the buses are not kept in as good mechanical shape as usual. It is not uncommon to hear buses in operation with loose connecting rod

bearings, while various compression leaks indicate that the vehicles are not receiving the same care as before. The mechanical staffs are so closely occupied with army work that it is impossible to give the usual attention to upkeep.

During the last few days drastic anti-lighting regulations have gone into force in the greater part of England. It requires a lawyer's training to understand the details of the order, for it is divided in a complicated manner into schedules, and the whole of the country divided into areas each one of which has its special restrictions. Briefly, no brilliant lights are allowed anywhere in England and around the coast is a strip varying in width from 6 to 100 miles, within which motor cars must reduce lights to a mere glimmer. Even at Warwick, Coventry and Leamington, in the heart of England, special regulations are in force against lights on ve-

hicles. In London district headlights are tabooed and side lamps have to be reduced in intensity until they are absolutely useless to the driver. While motorists have to reduce their lights, other vehicles which formerly carried no light at all must now display a glimmer at the rear. This applies to bicycles, which must show a white light in front and a red light behind, and also to baby carriages.

Drivers Protest

Motor car drivers are protesting energetically but uselessly against the new regulations. Whenever possible the simplest plan is not to use a car at all after dark, but this is not possible in the case of commercial vehicles, and is only applicable with difficulty to certain professions. Doctors are threatening that they will not respond to night calls if there is not some relaxation in the lighting regulations.

See America First — • • • See America Now



EDITOR'S NOTE—This is the sixty-fourth of a series of illustrations and thumb-nail sketches of the scenic and historic wonders of America to be published in Motor Age for the purpose of calling the attention of motorists to the points of interest in their own country.

NO. 64—GENERAL SHERIDAN'S HEADQUARTERS AT WINCHESTER, VA.

GENERAL Phil Sheridan's ride through the valley of the Shenandoah, one of the most dramatic episodes of the Civil War is noted by motorists touring the state of Virginia for at Winchester still stands the white-pillared house where the Yankee cavalry officer made his headquarters while engaged in the epochal campaign with the army of the Potomac.

Drops 300-Mile Race

Sioux City to Substitute Shorter Events for Contest Held in Past Two Years

Hawkeyes Also Will Promote Meets for Non-Professional Drivers

CHICAGO, Feb. 2—The 300-mile race, which the Sioux City speedway association has promoted for the past 2 years, will be abandoned this season and two events, one of 100 and the other of 50 miles, will be substituted. There will be no cut in the total prize money, however, as \$15,000, the amount hung up last year, will be offered again in 1916. The Sioux City promoters have come to this decision because they believe that the spectators demand more action than is provided by a 300-mile event.

W. W. Stevens, the owner of the Sioux City speedway, and E. W. Schultz, contest manager, went to Minneapolis at the close of the Chicago motor show to confer with the directors of the Twin City speedway regarding a change in dates. Each track has been awarded the Fourth of July but it will be impossible to run rival attractions on that date because of the paucity of high grade cars in this country.

The Hawkeyes have asked the Twin City speedway directors to abandon the holiday date and take June 17, originally awarded Chicago but given up by the local promoters for June 10 in order that the Chicago motor derby will fall during the week of the Republican national convention, permitting Sioux City to hold July 4 without a conflict.

An Argument Advanced

The Sioux City promoters claim that the Twin City track will profit by abandoning a holiday race, arguing that the lakes and summer resorts of Minnesota will attract hundreds of residents of St. Paul and Minneapolis away from the speedway on the Fourth of July and consequently the gate receipts will suffer. On the other hand, they maintain that a holiday is better than a Saturday for Sioux City because of the fact that the Hawkeye race is a mecca for the farmers who will come to town on the Fourth of July but are too thrifty to sacrifice half of a regular working day in order to get to the speedway on a Saturday.

Sioux plans to stage two meets for non-professionals later in the season. One meet will be for small cars, such as Ford, Maxwell and Overland, while the other will be a free-for-all. The races will be run under rules similar to those drafted for the amateur drivers' event to be run on the Chicago speedway May 20.

The Sioux City track will not be resurfaced this year but no expense will be spared to put it in as good shape as it was in 1914, when the time made on the 2-mile dirt course was a revelation. A new

drainage system has been installed that will carry away the water which did not dry out last season and consequently made the track soft.

During the past year, Sioux City has constructed 4½ miles of improved road almost to the gates of the speedway and motorists driving to the race will not suffer the inconveniences that caused much criticism last season.

STUTZ IN CORONA RACE

Chicago, Feb. 1—Earl Cooper will drive the fastest of the four Stutz cars, which won the road race and speedway championship of the world in 1915, in the Corona grand prize that will be run on the circular asphalt course of the California city March 17.

Although Harry Stutz, the builder of the history-making mounts, announced in the fall that he would not permit any of the cars to compete this season, it became known today that Cooper made a secret trip to Indianapolis 3 weeks ago to secure a Stutz for the Corona race and that he was successful. The car has been overhauled and tuned up and now is en route to the Pacific coast.

It is believed here that Harry Stutz's ambition to shatter the world's road racing record of 87.8 miles per hour, established by Eddie Pullen's Mercer in the Corona contest of 1914, caused him to grant Cooper's request. Moreover, the Mercer is the natural rival of the Stutz and the builder of the latter car is glad to grasp an opportunity to settle a question of supremacy, an opportunity that is offered for the first time in a year as the Mercer did not compete in any of the major speedway events of 1915.

Bob Burman will be another contender at Corona. He arrived from Los Angeles last week to attend the Chicago show. With the assistance of Harry Miller, he has overhauled his Peugeot on the Pacific coast and says that the French car is now in the pink of condition for a hard campaign during the impending season.

ANDERSON RETURNS FROM NORWAY

Chicago, Jan. 31—Gil Anderson, winner of the Vincent Astor cup race, has no desire to win glory on the battlefield. The dean of the Stutz team returned unexpectedly last week from Norway, where he has been for the last 2 months visiting relatives and touring his native land and Sweden and Denmark as well. When he saw the war clouds veiling the midnight sun, he suddenly decided that he would rather chase prize money on American speedways than dodge bullets as a military chauffeur in Europe. Gil has made no racing plans for this season and if Harry Stutz sticks to his determination not to compete, the Norseman probably will be a spectator instead of a contender. He is back on the job at the Stutz factory, however, where he works in the racing car department.

Seeks Fame in Clouds

Ray Harroun Leaves Maxwell Company to Develop Aero-plane Motors

Also Will Build Two-Mile-a-Minute Car for Speedway Trials

CHICAGO, Jan. 31—Ray Harroun, who has been identified with the motor car industry as a race driver, inventor of a kerosene carburetor and chief engineer of the Maxwell Motor Co., is about to put his versatility to a further test.

During the week of the Chicago motor show, Harroun announced that he had severed his connections with the Maxwell company, with which he has been identified for the past 2 years, and that he would open a shop in Detroit where he will develop and ultimately manufacture on a commercial basis a popular-priced aviation motor.

Richard Miles, who has been assistant to Harroun on the Maxwell staff, succeeds the former driver of the Indianapolis-winning Marmon as chief engineer.

Harroun has been interested in aeronautic engineering problems for some time and in entering the aviation field is following the pace set by the Packard Motor Car Co., which now is experimenting with twin six aeroplane motors, and Fred Duesenberg, maker of the racing cars bearing his name, who is developing a twelve-cylinder engine for flying machines.

In addition to his aviation motor work, Harroun will construct a special racing car that he guarantees will cover a lap of a 2-mile speedway in less than 1 minute, or at an average exceeding 120 miles per hour. It will be a stunt car and not eligible for the regular speedway events, having a piston displacement of over 300 cubic inches. A syndicate of speedway promoters, who have not started building their track as yet, are financing the deal.

Harroun also is under contract to Carl G. Fisher and James Allison, who purchased the four Maxwell racing cars last summer and are campaigning them under the name of the Prest-O-Lite team, to further improve and develop the black mounts. This is according to an agreement made between the Maxwell company and the Indianapolis speedway owners at the time the cars were purchased.

PREMIER TO MAKE RACE CARS

Indianapolis, Ind., Feb. 2—The name of Premier will be heard in racing circles this season as a result of a deal now pending whereby the Premier Motor Mfg. Co., of this city, will build two racing cars for the owners of the Indianapolis speedway. Although it was announced last week that the local speedway magnates would add two American-built mounts to their stable of four Maxwells and two Peugeots, the

Hoosiers at that time refused to reveal the identity of the maker.

The arrangement with the Premier company was made possible by the fact that the concern has just been reorganized and is not ready as yet to start quantity production.

In addition to building the two new cars the Premier plant will turn out spare parts for the Peugeots, driven by Howdy Wilcox and Johnny Aitken in the Vincent Astor cup event at New York in October. Several replacements are to be made in the French mounts before they can be campaigned and it is impossible to obtain parts in war-ridden Europe.

The new cars probably will be campaigned as Premier Specials. No drivers have been selected for them as yet, but it is reported that the speedway owners would like to sign up Gil Anderson and Tom Rooney, provided Stutz does not race, as Indianapolis drivers on Indianapolis cars pay increased dividends at the gate in this city, where the native son spirit is strong.

AMATEUR DRIVERS ORGANIZING

Los Angeles, Cal., Feb. 1—Frank A. Garbutt, a well-known amateur sportsman of this city is fostering the organization of a gentleman's motor driving club, which in reality will be an organization of amateur speed kings. Mr. Garbutt, who is a director and prominent in the affairs of the Los Angeles Athletic Club, also is rated as one of the greatest amateur drivers in the country, and with the opening of the 1-mile Ascot speedway in Los Angeles, Garbutt is anxious to arouse interest in the sport among amateurs and make the speedway the headquarters of the club.

The plan is to recruit a membership from among the prominent motorists of the city owning high-powered cars, and after developing a number of expert pilots among the membership of the club, to stage a series of amateur races on the speedway while the professional drivers are in the east cleaning up the prize money on the speedways at Indianapolis, Chicago, New York and other places.

MOTOR PAPER EDITOR DIES

New York, Jan. 29—Roy Stannard Drake, editor of Automobile Topics, died yesterday morning at his home in this city of pneumonia. He was born in Cleveland and was 35 years old. His activities in motor journalism followed some years of work for the Cleveland Plain Dealer, Cleveland Press and the Washington Press, where he reported senate affairs. Mr. Drake later joined the advertising department of the Winton Motor Car Co., Cleveland, and following this connection he became advertising manager for the Post & Lester Co., Hartford, Conn. His motor journalistic career began when he joined the editorial department of the Motor World, this city.

Expect Racing Revival

Fans Look for Keen Contests on the Pacific Coast This Season

Work of Resurfacing Ascot Speedway Is Begun

LOS ANGELES, Cal., Jan. 28—With the big rain having passed on into history and Arizona, the work of rebuilding the Ascot speedway is being vigorously pushed so that ample time may be given to the drivers for practice for the \$5,000 race of 100 miles on Washington's birthday. At least 3 weeks of construction, even with large facilities, will be needed, it is asserted, to regrade the curves and lay the heavy pavement of asphalt-concrete.

The first step, after assembling the large camp of workers at Ascot, is the raising of the curves 5 feet, thus adding materially to the pitch of the turns and the speed of the racing cars. By tomorrow this work will be well under way.

While this activity, which means so much to motor racing in this section, is on at Ascot, the attention of the motor fans also will be directed toward New York. In the metropolis next week, George R. Bentel will appear before the Motor Cups Holding Association and present Corona's formal application for the international grand prize, March 17.

It was the intention of Mr. Bentel to be in New York before this but the storms, which delayed railroad traffic, forced him to delay his starting until the trains were back on something like schedule. Bentel, who always has been a Corona booster, is following a telegram to New York sent by the Citrus Belt Racing Association of Corona asking for the grand prize with a purse of \$12,000.

He originally was going east in the interest of the Ascot speedway but at the recent Corona meeting, accepted the invitation to represent Corona in person before the board which controls the grand prize cup. Thus he will have the double purpose of obtaining, if possible, the classic for Corona and also drivers for both Corona and Ascot.

Six days, with large gangs of men, mules, scrapers and graders, will be required at Ascot to move the large quantity of dirt that will be needed to give the necessary pitch to the curves. It is the belief of the engineers and officials of the Ascot Speedway Association that the grade can be increased thus adding to the speed of the cars without destroying the spectacular features of racing.

All are clinging to the original idea of building a course which will have the speed and at the same time require real skill in driving. That they do this is the advice of the experts who have observed the

speedway racing in the East. Also there lingers the memory of the motordrome at Playa del Rey where the engineers and carpenters did such a perfect job that even the fastest racing was about as exciting as a merry-go-round.

After the decision as to the grade had been reached came the problem of the surfacing. At first decomposed granite was considered until Engineer Lee Grider found that it would rut slightly under continued driving. That caused the granite to be quickly dropped.

That left boards, cement and asphalt from which to choose. Each was considered in turn. Boards are admittedly fast but expensive. Then came the cement. Besides having a "dead" effect on speed, it was not promised that the cement would not "wave" and buckle under weather changes. The drivers, too, urged against cement. Asphalt-cement finally was decided upon.

WILL RACE UP PIKE'S PEAK

Chicago, Feb. 1—Ralph de Palma and Barney Oldfield have signified their willingness to enter a match race up Pike's Peak at the time of the hillclimb set for next August, according to Eugene A. Sunderlin, president of the Pike's Peak highway.

The climb, which will be under the sanction of the American Automobile Association, will be held August 3, 4 and 5, this year. The plans call for a 3-days' meet, during which one event will be for the Penrose trophy donated by Spencer Penrose, multi-millionaire, Colorado Springs sportsman and brother of Senator Boise Penrose, of Pennsylvania.

This climb for the trophy will be run on the last day of the meet, the one making the best time in two out of three heats to be declared the winner, but he must win it three times in succession to obtain permanent ownership. The match race between de Palma and Oldfield will be for a special cash prize. The finish will be 14,109 feet above sea level, but whether the entire 18 miles of this highway will be used as a course, or a 6 to 10-mile section leading to the top, has not been decided.

GASTON MORRIS A MAJOR (MEX.)

Jaurez, Mexico, Jan. 28—Gaston Morris, formerly a registered racing driver and well-known character on American motor race courses, showed up in Jaurez a few days ago on a furlough. Gaston was at one time billed as the French speed king and barnstormed the country with Barney Oldfield. He now has the rank of major in the Mexican army under Gen. Carranza and has been driving Gen. Obregon's car in the field during the campaigning through northern Mexico. Obregon has gone down into the interior for a conference with other officers of the reconstruction faction and granted Major Morris a short leave of absence.

Federal Aid for Roads Now Awaits Senate's Action

Shackleford Bill, Carrying \$25,000,000 Appropriation, Passes House by Vote of 281 to 81

WASHINGTON, D. C., Feb. 1—By a vote of 281 to 81, the house of representatives has passed what is called the Shackleford bill, carrying an appropriation of \$25,000,000 to aid the states in improving their public roads used in the postal service of the government. Sixteen or seventeen bills, probably more, relating to the same subject, have been submitted to the house at its present session, and all of them, though differing somewhat in minor details, are to the same general effect that it is well within the constitutional rights and certainly the imperative duty of the congress to provide funds out of the public treasury for this great public necessity.

The bill, as it passed the house, provides that in certain cases, clearly defined in the bill, the secretary of agriculture shall aid the states in the construction and maintenance of rural post roads, which means "any public road over which rural mail is, or might be, carried outside of incorporated cities, towns or boroughs having a population exceeding 2,000." The expense of administering the fund thus provided is to be paid out of the fund. Each state is to receive outright the sum of \$65,000 and one-half of the remainder to be divided is to be apportioned among the states according to population, and the remaining half according to the mileage of rural free delivery routes to the extent that such population and rural free delivery routes bear to the population and free delivery routes of all the states.

Details of Distribution

The administration of the fund is to be under the general direction of the secretary of agriculture and its distribution is to be regulated upon terms which will protect the federal treasury and assure the satisfactory completion of the work undertaken. The secretary will do his part through the highway departments of the several states, and, in the absence of such departments, through such representatives of the state as may be agreed upon by the secretary and the governor. Upon application from the states for aid in the construction of any rural post road, the secretary is to decide whether or not the aid desired comes within the provisions of the bill and if he shall decide in favor of the proposed road he shall require plans, specifications and estimates of cost for his approval. Upon approval and the acceptance of the state of the conditions upon which federal aid will be given, the secretary will have the authority to give not less than 30 per cent nor more than 50 per cent of the reasonable cost of construction or maintenance of

the road thus approved.

All construction and maintenance of roads under this bill shall be under the supervision and control of the state highway departments of the states. In such states as have no highway department the apportionment of the fund for such state shall be expended in such manner as the secretary and the governor may agree upon. The secretary is authorized to make or direct such examination and inspection of any road constructed or maintained under the provisions of the act and "to prescribe such rules and regulations for the administration of this act as he may consider expedient." All payments for road construction under the act are to be made upon warrants drawn by the secretary of agriculture. The state desiring aid under the act "may apply" and the secretary may approve or reject the application. So far as the federal treasury is concerned, the act is "horse-high, bull-strong and pig-tight." It is pure business and without the least touch of sentiment.

If the maximum of \$25,000 provided in the act be appropriated, the total amount of aid to each state, counting population, rural free delivery roads and star routes, will be:

Alabama, \$579,180; Arizona, \$117,512; Arkansas, \$430,396; California, \$504,788; Colorado, \$253,168; Connecticut, \$258,638; Delaware, \$103,290; Florida, \$220,348; Georgia, \$722,494; Idaho, \$170,024; Illinois, \$1,372,330; Indiana, \$854,868; Iowa, \$841,740; Kansas, \$747,656; Kentucky, \$580,274; Louisiana, \$345,064; Maine, \$276,142; Maryland, \$318,808; Massachusetts, \$35,420; Michigan, \$850,492; Minnesota, \$733,434; Mississippi, \$497,130; Missouri, \$974,114; Montana, \$192,998; Nebraska, \$514,634; Nevada, \$101,102; New Hampshire, \$175,494; New Jersey, \$438,054; New Mexico, \$155,802; New York, \$1,594,412; North Carolina, \$655,760; North Dakota, \$325,372; Ohio, \$1,198,384; Oklahoma, \$532,138; Oregon, \$248,792; Pennsylvania, \$1,469,696; Rhode Island, \$139,392; South Carolina, \$442,430; South Dakota, \$337,406; Tennessee, \$694,050; Texas, \$1,070,386; Utah, \$143,768; Vermont, \$187,528; Virginia, \$591,214; Washington, \$301,304; West Virginia, \$340,688; Wisconsin, \$736,716; Wyoming, \$125,170.

The act does not mean that the United States is going into general road construction in the several states; but that it will aid the states in the construction of certain specified highways to the extent of \$25,000,000 annually, the states to provide a like amount for the construction of such roads.

In round numbers, there are about 2,250,000 miles of public roads in the United States and the last year the expenditures on account of road construction made by the states, counties, townships and districts, including the estimated value of convict labor, aggregated about \$235,000,000. It is estimated that the cost of construction and maintenance amounted to about \$260,000,000; so that the appropriation provided for in the Shackleford bill is very small compared with the enormous amount required for road construction in the country. It is a beginning, however, and shows at least the progress of the good roads movement.

Federal Aid Defeated in 1915

Last year a similar bill was passed by the house by an overwhelming majority. The hearings by the special committee charged with the work lasted for weeks and the statement of the chairman in introducing the witnesses that "there is no question in the minds of this committee as to the necessity for improving the roads of this country and desirability of the government contributing something toward their construction and maintenance" became almost stereotyped. Speeches almost without end were made, and in the present congress there is none to question the necessity of good roads for any reason commercial, industrial or social. The main objection made by members of the present congress who spoke against the measure was the state of the federal treasury and the more immediate necessity of providing for the defense of the country.

What the senate will do with the good roads bill remains to be seen. The senate killed the bill last year and the senate does not quickly change its spots. The present bill has been prepared with the greatest care and is the result of the best thought of those who have given many years' study to the subject.

SPEEDWAY FOR KANSAS CITY

Kansas City, Mo., Jan. 31—Jack Prince, of Los Angeles, builder of the Omaha and Des Moines speedways, announced today that he had signed contracts with the directors of the Kansas City Speedway and Exposition Co. for the erection of a 2-mile board motor speedway. He expects to begin work in about 2 weeks, he said. The speedway is to cover a 200-acre tract leased from the Swift-Armour-Burlington interests across the Missouri river in North Kansas City. A grandstand, with a seating capacity of 50,000 and 200 boxes, will be built. The track will incline thirty degrees on the curves and five degrees on the stretches.

Goodrich Pays Dividend

Common Stock Now on 4 Per Cent Dividend Basis

Net Earnings Exceed Expectations—
Several Factory Executives
Promoted

AKRON, O., Feb. 2.—Much interest centered around the annual meeting of the B. F. Goodrich Company held last week. The unusual jump of the common stock from 17 to about 70 in the past year gave rise to rumors of a resumption of the dividend on the common stock, which prediction was realized and a dividend of 1 per cent, payable February 1, was declared. While the action of the company only means the payment of one dividend, it is believed there is no doubt but that regular dividends at the rate of 4 per cent yearly will be continued.

The financial statement showed that the net earnings for the year 1915 were \$12,200,000, which far exceeds the preliminary estimates. The current assets are reported to be \$31,250,000 and the liabilities \$4,200,000. This figure is an increase of approximately \$8,100,000 over the difference between the assets and liabilities a year ago.

B. G. Works was re-elected president of the corporation, W. O. Rutherford, formerly assistant sales manager, goes up a step higher being made sales manager, succeeding H. E. Raymond, who becomes a vice-president. Mr. Raymond's position as second vice-president was abolished. He will continue in charge of sales and advertising. The office of general manager, held by A. H. Marks, also has been abolished and he becomes a vice-president but retains his duties as works manager.

NINE STANDARD TIRE SIZES

Akron, O., Jan. 31.—Tire manufacturers are elated over the progress which has been made by the Society of Automobile Engineers in standardizing tire sizes and thus simplifying stocks. At present there are but nine sizes in the S. A. E. standards, with corresponding over-sizes for each. These are:

Standard	Oversize
30 by 3	31 by 3½
30 by 3½	31 by 4
32 by 3½	33 by 4
32 by 4	33 by 4½
34 by 4	35 by 4½
34 by 4½	35 by 5
36 by 4½	37 by 5
36 by 5	37 by 5½
38 by 5½	39 by 6

BOOM YEAR FOR REPUBLIC

Youngstown, O., Jan. 28.—Republic tire sales increased 69 per cent in 1915 over the previous year, according to a report from the Republic Rubber Co., this city, which held its fifteenth annual meeting last week. Taking all departments into consideration, the company had more business on its books Jan. 24 than on any date in its

history and prospects are good. The usual cash dividends at regular rates were declared. The old officers were re-elected, as follows:

President, T. L. Robinson; vice-presidents, L. T. Petersen and J. H. Kelly; secretary, C. F. Garrison; treasurer, M. I. Arms, II.

There were two additions to the board of directors, as follows: H. M. Garlick, president of the Standard Oil Cloth Co., and R. E. Cornelius, president of the Mahoning National Bank. David Tod, who has been on the board for some years, was not re-elected, at his own request.

NEW TIRE COMPANY FORMED

Cleveland, O., Jan. 31.—The organization of the McLean Tire and Rubber Co. was completed Saturday by the election of the following officers: President, J. C. McLean; vice-president, W. B. Davis; secretary, G. W. Stewart; treasurer and general manager, T. J. Holmden. Most of the men interested in the new company are connected with the M. & M. Co., wholesale and retail dealers in accessories.

The old Morgan & Marshall Tire and Rubber Co.'s plant at East Liverpool, O., was purchased some time ago by the new company.

S. A. E. CHAIRMEN APPOINTED

Chicago, Jan. 28.—The governing council of the Society of Automobile Engineers has appointed A. L. Clayden, engineering editor of The Automobile, New York, as chairman of the Standards committee to succeed K. W. Zimmerschied, metallurgist of the General Motors, who occupied this position during the past year. Mr. Clayden has been in this country but 1 year but was connected with engineering work in Europe since the inception of the motor car. Chairmen of other committees are: Finance, N. M. Swetland, Class Journal Co.; Meetings, George Dunham, consulting engineer, Detroit; Members, R. H. Coombs, Prest-O-Lite Co., Indianapolis; Publications, Herbert Chase, laboratory engineer, Automobile Club of America, New York.

TIRE MAKERS INCREASE PRICES

New York, Feb. 1.—Special telegram—General advances in prices for tires were announced yesterday afternoon by Lee Tire Co. The puncture proof have been advanced 15 per cent, all other grades are 10 per cent higher.

Michelin this morning raised prices 10 to 15 per cent. Though Nassau prices are yet unchanged, it is expected that before the week is over this company will announce a new schedule.

ANOTHER TIRE PRICE INCREASE

New York, Jan. 31.—Within the past week, the Firestone Tire and Rubber Co. increased the price of truck tires another 10 per cent, this in addition to the 10 per cent increase announced earlier.

Packard for Americans

Promotions Only for Native and Naturalized Citizens

Detroit Manufacturer Sees Changed Working Conditions Due to War

DETROIT, Mich., Jan. 31.—Believing that conditions in America have changed a good deal since the outbreak of the European war, the Packard Motor Car Co., after months of investigation, has decided that beginning today promotions to any better and more responsible position than that of simple or mere shopworker or employee, will be given only to American born and to foreigners who have become American citizens or who already have taken the necessary steps to get their citizenship papers.

Among the 12,000 or more workers now on the payroll of the company there are men from most all countries in the world, a majority of the foreigners being Europeans. Since the war begun, there have been many instances of friction among some of these workers, practically all on account of nationality. Unless the foreman was one of their countrymen, the British workers, for instance, would object because he was an Austrian or a German; the German workers would protest in having for boss a Frenchman or a Belgian or an Italian. It was also shown from the investigation that many of the foreigners kept up their foreign ideas, customs, habits and aspirations and that they did not seem to take any special interest in America.

The Packard officials believe that it will be for the good of the country in general, for their own good, and for the best interests of the men, that the foreigners who come here to earn their living, who desire to get better pay and have positions of greater responsibility, who intend to stay here, that these men should become American citizens.

Every Packard worker will receive today the following announcement:

AMERICANS FIRST

The Packard Motor Car Co. makes this announcement of a new and important policy to all its employees:

From and after this date promotion to positions of importance in the organization of this company will be given only to those who are native born or naturalized citizens of the United States, or to those of foreign birth who have relinquished their foreign citizenship and who have filed with our government their first papers applying for citizenship, which application for citizenship must be diligently followed to completion.

LOYALTY IS FIRST

Employees of foreign birth who retain their foreign citizenship will not be discriminated against in their present positions or work, but they will not be promoted to positions of responsibility and trust.

A pre-requisite to employment in this company must be loyalty to our government and our flag, in addition to loyalty to the company itself.

The factory management is authorized to make this order effective immediately.

PACKARD MOTOR CAR CO., DETROIT,
By Alvan Macauley,
Vice-Pres. and Gen. Mgt.



King George V alighting from car at munition works in Saltley, Birmingham
Copyright International Film Service, Inc.

"The time has come, the walrus said,
"To gaze on many things,
Of rulers mixed with gasoline,
And cabriolets and Kings"



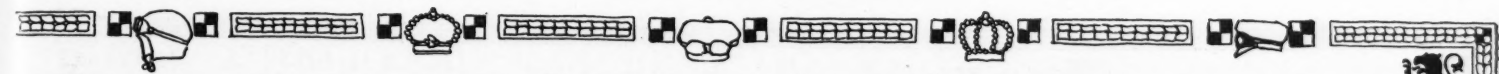
Above, Prince of Wales with English army in France. Left, King Emmanuel of Italy with his staff leaving for the front. Below, King Albert of Belgium, seated on the left in the rear seat, and President Poincaré of France beside him, reviewing troops at Furnes

First two photographs covered by above caption copyrighted by Medem Photo Service and last by Underwood & Underwood

Prince Andrew of Greece, who is inseparable from a monacle

Copyright International Film Service, Inc.





Kaiser Wilhelm of Germany during one of his recent visits to the eastern theater of activities near Poland. His brother, Prince Henry, stands on the far side of the car



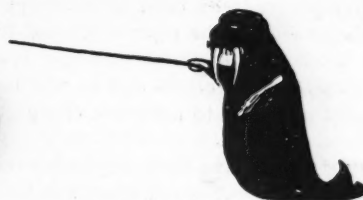
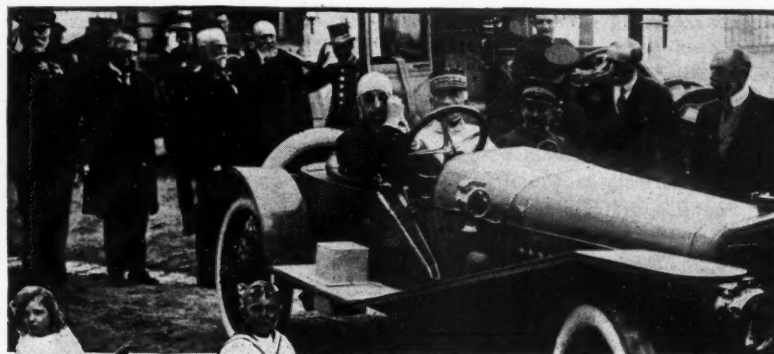
President Woodrow Wilson in New York. Mayor Mitchel is in the seat just in front of the nation's chief executive



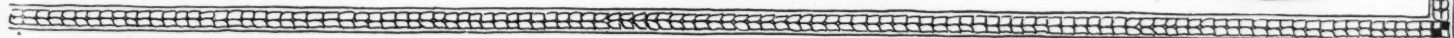
President Poincare of France is an ardent admirer of motoring. King Alphonso of Spain is standing beside the car and the queen of Spain is seated beside Poincare



Just above is Ferdinand of Bulgaria, while at the right is King Alphonso of Spain, Europe's youngest monarch, who perhaps owns more speed cars than any other European ruler. At the bottom of the page are four members of the royal family of Spain, sons and daughters of the king and queen



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Causes of Motor Car and Street Car Accidents

THE three principal reasons why there have been and are so many collisions between motor vehicles and street cars, at least in Detroit, are as follows, according to the Detroit United Lines, the street car company of the Michigan metropolis:

1—Failure to have the motor vehicle under control when approaching a street car track.

2—Eagerness to speed up and pass the street car for the purpose of driving on the clean car track.

3—Lack of knowledge on how to operate the motor vehicle resulting in the engine becoming stalled when it is too late for the street car to stop.

"And many of the accidents coming within the first two reasons result from a mental condition of recklessness created by a degree of intoxication. Booze and safe driving do not go hand in hand," adds the street car company.

Statistics, compiled by the car lines, show that there were 9,328 vehicles of all kinds in collision with the street cars in 1915. This is 1,962 more than in 1914. Of the total number, there were 5,275 motor vehicles or 1,203 more than in 1914. All other vehicles, except motor-driven, figured in 3,053 collisions, which is a decrease of 241 from the total in 1914. Pedestrians figure in 955 accidents or 51 more than in 1914.

Referring to pedestrians, the street car company says: "While pedestrians still continue to jay-walk and take

chances, we are convinced they are using more caution than the vehicle driver. The latter is aware that his person may not be injured in collision, but the pedestrian knows that he is certain to be hurt to a greater or less degree, as witnessed by the fact that 47 of them were killed in 1915 out of 955 collisions with the street cars. This total of 955 last year is only 54 more than in 1914, despite the tremendous increase in the use of the streets as a factor of an exceedingly busy year."

MOST OF THE ACCIDENTS DUE TO "I DIDN'T THINK"

	1914			1915		
	* Other vehicles	Motor cars	Pedestrians	* Other vehicles	Motor cars	Pedestrians
January	245	312	75	297	465	62
February	416	392	84	264	305	56
March	262	259	65	215	264	52
April	230	250	68	192	309	66
May	246	319	92	214	379	82
June	305	324	94	207	431	89
July	263	338	78	238	405	91
August	279	323	77	259	473	90
September	257	362	84	270	565	104
October	300	348	77	313	493	80
November	248	354	49	292	506	99
December	243	491	58	292	680	84
Totals	3,294	4,072	901	3,053	5,275	955

* Includes horse-drawn vehicles, motorcycles and bicycles.

Car Drivers Vindicated

THAT pedestrians are as much if not more to blame in the majority of accidents in which they are injured by motor cars, has been brought out in connection with a vigorous campaign being waged in Syracuse, N. Y., for safety first.

Popular sentiment was aroused by a number of fatalities and serious injuries resulting from collisions between motor cars and pedestrians in the streets. Half a dozen people have been killed during the last few weeks and many more seriously injured.

In the majority of cases investigation proved that the drivers of the motor cars were blameless, the accident resulting from the carelessness of the pedestrian.

In a number of instances witnesses swore that the machines were being driven at a speed of less than 10 miles an hour and that the driver did everything possible to avoid hitting the person injured. In one case the driver was held for the action of the grand jury on the charge of manslaughter. An effort is being made to have pedestrians follow the signals of the traffic officer at street crossings as well as the drivers of vehicles but it has been found a difficult task.

The traffic ordinances are being rigidly enforced and the police have shown no favoritism, arresting or summoning to court wealthy and influential citizens along with chauffeurs and taxicab drivers. The man who leaves his car anywhere but in a designated parking space in the congested district, or standing without lights in the residential part of the city, is very apt to find it missing on his return. If he reports its loss to the police he will very likely find that his car has been driven to headquarters by a patrolman and he will be requested to come to court next day to answer a charge for violation of the traffic ordinances.

Heavy fines have been imposed even on first offenders in cases where the speed limit has been exceeded.

Traffic in Cincinnati

THE city authorities and the judiciary of Cincinnati have taken up the question of obedience to traffic rules and ordinances and the result is a more stringent observance of the laws which are now in force. Steps are also being taken to have enacted more rigorous laws for the control of traffic on the streets of the city.

Judge O. J. Cosgrove, presiding in the criminal division of the courts, devoted a large portion of his charge to the grand jury to the prevention of traffic accidents. He called attention to the new traffic problems caused by the wonderful development of motor cars and also the greater danger to life and limb caused by their operation. Motor cars have come to stay and the cutting down of speed will endanger the efficiency of their use. In the meantime the speed of pedestrians has not increased in the same ratio with that of motor-driven vehicles. As a result greater care is necessary to safeguard lives and health.

Safety Director W. J. Friedlander, acting under instructions from Mayor Puchta, has issued orders to the police to place reckless drivers of motor cars and trucks under arrest and to force them to furnish bonds, instead of being cited to appear in court.

He also stated that in the near future he will confer with Chief of Police Copelan as to the advisability of adopting a distinctive uniform for the traffic police as in New York where they are clothed in white poncho, white boots and white helmet. The test there, said Mr. Friedlander, has demonstrated that uniforms of this color are a success. He is also in favor of a white uniform in dry weather.

As soon as funds are available, Director Friedlander stated that "stop" and "go" signals will be installed at important traffic points, and "safety zones" also will be established in the center of the wide streets of the city for the safety of pedestrians.

Ford Production Continues to Grow

Aim Ultimately to Produce 1,000,000 Cars Every 12 Months

DETROIT, Mich., Feb. 2—Henry Ford already is making plans for the day when the annual output of cars bearing his name will reach the astounding total of 1,000,000 or more. After several months of negotiations, about 20 acres of land, adjacent to the site of the present Ford plant, have been secured. On this ground, another plant, similar to the one now in use, will be constructed.

When this motor car plant-extraordinary is completed, it will mean that instead of 24,000 to 25,000 men now employed by the Ford company here there will be a working force of from 60,000 to 75,000. When this addition to the Ford is completed it also will mean that the population of Detroit will be increased by at least 36,000 to 50,000 workers and probably by 18,000 to 25,000 wives. Including children, Detroit's population will then be increased by at least 60,000 persons.

What it means in expenditure is estimated by the Ford officials at from \$8,000,000 to \$10,000,000, of which at least \$2,000,000 will be for the buildings and the balance for machinery, tools and general equipment. This expenditure of \$10,000,000 would thus compare very favorably with the total of \$12,886,345, which was expended during 1915 by a total of ninety-six car and parts manufacturers in this country.

4,000 Daily Soon

Only a few days ago Henry Ford is reported to have stated that 4,000 Ford cars soon will be made daily. More than 2,000 was a daily output record for many days last year when the Ford schedule called for 300,000 cars during its fiscal year. This year it calls for 500,000, and thus Mr. Ford's prediction must not seem so fantastic. If you have the place, the tools, the machinery, the materials, the men, the system, then, what once was a big 1-year production, becomes only a big 1-day output. And the time will most likely come, so they say at the Ford plant, when 5,000 or 6,000 or more cars will be made per day.

The building plans include practically the duplication of most of the present buildings, and the extension of most of the latter. There is also to be a mammoth foundry, and the power plant, which is now nearing completion, may be doubled.

Facing Woodward avenue, to the right of the power plant, there will be a duplicate four-story general office building. Behind this the general factory building is to be extended 800 feet along the avenue, which will give the plant a frontage in buildings alone of nearly 1,650 feet.

The first extension work is to be started on a six-story building on Manchester avenue. It is to be duplicated, which means the construction of a building 945 by 245 feet, thus making the total length or depth of the present or original plant at least 1,890 feet. It will constitute one of the largest manufacturing buildings, possibly the largest, in the world.

JANUARY DETROIT'S GREATEST

Detroit, Mich., Jan. 31—This is the last day of the biggest month in the history of the motor industry locally, and most likely nationally. January, 1916, has broken all previous output marks and business records with motor car and parts makers in this city by such a margin, that sales managers, vice-presidents or presidents, who were questioned, said generally: "We wouldn't give you the figures for publication because people would think we are trying to make them swallow a bluff."

Formerly when there was an increase in production of 50 per cent or an increase of sales of about 100 per cent, it made you question whether it was really possible. Last year some makers occasionally announced increases from one month to another of 100 or 200 per cent. But today, half a dozen stated that January showed 500, 600 or even a greater increase in output and in sales, or in orders received during the month.

One manufacturer of a popular priced car had received orders for 500 cars in January, 1915. On his books this morning, before the usually heavy Monday morning mail had been distributed, he had just a few less than 7,000 orders, or better said, orders for 7,000 of his cars. Another manufacturer, whose cars are listed in the \$1,000 to \$2,000 class, made and sold more than 500 per cent more cars in January, 1916, than last year. Another veteran builder, whose product comes in the higher priced class than \$2,000, showed an increased business and output which took up three big figures, in comparison with 1915 January activities.

BILL AGAINST PRICE CUTTING

Washington, D. C., Jan. 29—Accessory dealers will be interested in a bill introduced in congress by Senator Ashurst, of Arizona, to protect the public against dishonest advertising and false pretenses in merchandising. One provision of the bill is that in any contract of sale by a producer of articles to any wholesale or retail dealer, where the contract constitutes interstate commerce, the producer shall have the right to prescribe the uniform

prices and manners of settlement at which the different qualities and quantities of each article covered by the contract may be sold. Special provision is made, however, against monopoly or the control of the market for articles belonging to the same general class. The producer or vendor, must file with the federal trade commission a statement regarding his contracts for sale and the scale of prices, and he must pay a fee of \$10 for registration of such contracts with the commission. The bill was referred to the committee on interstate commerce.

NOVEMBER MOTOR CAR EXPORTS

Washington, D. C., Feb. 1—Special telegram—According to a report of the department of commerce, made public today, the following exports of American motor cars were made during November, 1915:

Commercial cars, 1,553, valued at \$3,837,307; passenger cars, 3,690, valued at \$2,791,507; and parts, not including engines and tires, valued at \$1,693,787.

The exports for eleven months of 1915, ending November 30, were 20,418 trucks, valued at \$55,913,713; 38,205 passenger cars, valued at \$32,334,734; and parts valued at \$14,508,596.

The principal purchasers of American cars in November were France, 698 cars, valued at \$1,848,965; Great Britain, 1,534 cars, valued at \$1,706,832; other European countries, 520 cars, valued at \$1,504,410; British Oceania, 832 cars, valued at \$362,124; and Canada, 210 cars, valued at \$209,684.

TRUCK PLANT FOR CHICAGO

Chicago, Feb. 2—A factory to cost more than \$100,000 is being built here and will be completed within 90 days by the Smith Form-A-Truck Co., manufacturer of the attachment to make a 1½-ton truck of a Ford car. The factory will be erected at Sixty-third street and Fifty-sixth avenue. When completed the production capacity will be increased to 300 attachments a day, or in the neighborhood of 70,000 a year. The plant at 411 North Clermont avenue, the present manufacturing home of the company, will not be abandoned until production has been started at the new location.

STANDARD STEEL BUYS PLANT

Pittsburgh, Pa., Feb. 2—The Standard Steel Car Co., maker of the Standard eight, has taken over the plants of the Pittsburgh Model Engine Co., of this city. According to Standard officials, the change was made necessary by increased business.

BILL TO SPRINGFIELD BODY

Detroit, Mich., Jan. 29—Harry Bill has become vice-president and general manager of the Springfield Body Co., and will have charge of production. Mr. Bill has been connected with the Hayes Mfg. Co., Detroit, in charge of production.

Cost of Raw Material May Boost the Price of Motor Cars

Chalmers Follows Lead of Packard and Cadillac, Raising One Model \$100

DETROIT, Mich., Feb. 1—Will prices of motor cars go up? Will the lead taken by Packard, Cadillac and Chalmers be followed by others? are questions which often are heard in and out of motor row.

An inquiry made among the manufacturers leads to the belief that other manufacturers will take that course before long. Not because they wish to do so, but because they will have to do it if they are expected to keep up making their cars with as good materials and with the same care and finish. And what is more, even manufacturers, who have increased their price, might be compelled to make another increase.

It does not require much investigation to find the cause. The quotations on raw materials—steels, copper, leather and a hundred other items manufacturers must have—are the evidence to the necessity. The prices the manufacturers paid a year ago and those of today bring the cost of production of most cars to a great deal over \$100 above the cost price at this time in 1915. This is only a minimum estimate and it is said by some that it has cost them already more than \$200 to put out the same car built a year ago.

Nothing indicates that there is to be a decrease in the cost of materials. Quite the opposite. Even where a greater supply might be obtained, there is no price reduction in view because the total quantity called for is so much greater than what it was a year ago. And with the perspective of an early peace abroad so far distant, the situation is becoming worse instead of improving.

What the Increase Means

What the increased metal prices is costing the motor car and accessory business is well indicated by the increased price in copper, now selling at 26 cents per pound, as compared with 14 cents in June. As a result of this increase, the carbureter industry will, during the coming calendar year, pay approximately \$750,000 additional for copper alone. This bill would be much greater were it not that many of the carbureters, which were waterjacketed last year, are made without waterjackets this season, the result being considerably less copper used in the casting.

Averaging the copper increase at 10 cents per pound, which is conservative, and calculating on 1,200,000 carbureters being needed for 1916, for cars, motorcycles and motor boats, and allowing an average of 5 pounds per carbureter, the total of 7,200,000 pounds of copper is obtained. This at 10 cents per pound increase gives a total advance of \$720,000.

The Chalmers Motor Co. has announced that, beginning March 1, the Chalmers 6-40

will sell at \$1,450 f. o. b. Detroit, instead of \$1,350, but that all orders of this model received up to midnight, February 29, will be sold at the former price, namely, \$1,350. The decision of the Chalmers officials to increase the price has been taken only on account of the continued raise in the cost of practically all raw materials needed in the construction and fitting of cars. Briefly stated, the Chalmers company says that it now costs \$118.22 more in raw material to build the 6-40 than it cost at the time this model was first announced. There is no increase in the prices of the other Chalmers models.

Chalmers officials say that they could have maintained the old price only by purchasing lower grades of materials and otherwise cheapening the car. They say that the price of vanadium steel has increased from \$1.85 per pound a year ago to \$8.50 now; copper now costs 24 cents per pound or more instead of 14 cents; high-speed steel has gone up from \$1.05 per pound to \$3.35; aluminum from 19 cents to 53 cents per pound; leather from 20 cents to 33 cents per foot.

MORE CAPITAL FOR GRANT

Findlay, O., Jan. 31—The Grant Motor Co. of Findlay is giving notice that it will issue \$1,000,000 7 per cent cumulative convertible preferred stock of the corporation, at \$105 a share, with a bonus of 20 per cent in common stock. A Chicago firm of bankers will underwrite the issue. As issued, the stock will be: Preferred, \$1,000,000; common, \$2,000,000. Of the authorized amount, \$1,000,000 is at par value, and is reserved for the conversion of the preferred stock. The increased capitalization will give the company sufficient funds with which to expand its business. Increased demand for the Grant car is given as reason for the necessity of the increased stock. President David A. Shaw says that the combined earnings of the company were about \$165,000 last year, whereas the annual dividend requirement for the present issue amounts to only \$70,000. Based on the estimated sales for 1916, he says that the net earnings for that time should be approximately \$720,000. He estimates a production of 12,000 cars this year, and this will be increased to 15,000 early next summer, probably about July 1.

CHALMERS TO LOCATE IN CANADA

Detroit, Mich., Jan. 31—Because the duty on motor cars and parts is becoming so high as to be prohibitive and because it is expected that after the war these duties or taxes will be even increased by the Canadian government, the Chalmers

Motor Co. has decided to start a plant either in Windsor or in Walkerville. The Chalmers Motor Co. of Canada, Ltd., was incorporated for that purpose, under the laws of Ontario, with a capital stock of \$1,000,000. How soon the plant will be in operation and exactly where it will be located will be announced later.

FORM LIBERTY CAR COMPANY

Detroit, Mich., Feb. 1—Several men of prominence in the motor car industry here have incorporated the Liberty Motor Car Co. with a capital stock of \$400,000 to manufacture a low-priced car. Negotiations have progressed to the extent of securing the plant formerly occupied by the R-C-H Corp.

Percy Owen, who, until recently, was vice-president and sales manager of the Saxon company and prior to that held the position of general sales manager with the Chalmers company, heads the new Liberty organization and also is the general manager. He has associated with him James F. Bourquin as vice-president. The latter was formerly general manager of the Paige-Detroit company and previous to that connection he was superintendent of manufacturing of the Chalmers company.

The Liberty engineer is R. E. Cole, who was the Saxon engineer, and H. M. Wirth, also a former Saxon man in the capacity of purchasing agent, will have similar duties for the Liberty.

There are said to be several other men well known in the trade that are interested in the new concern, but their names are withheld at this time.

PERFECTION HEATER TESTED

New York, Feb. 2—A certificate has just been issued by the Automobile Club of America covering a test made on the Perfection heater, manufactured by the Perfection Spring Service Co., Cleveland. The object of the test was to determine the effect of the heater on the power, fuel consumption and back pressure of the motor, and to note the temperature of different points of the radiator surface.

Five runs were made on the motor with the heater on, off, with valve open and valve closed and a check run with the heater off again. The conclusions showed that the power output and the gasoline consumption of the motor were not adversely affected by the use of the heater; the back pressure was reduced when the heater was attached and its control valve opened; the back pressure remained the same as it was without the heater when the control valve was closed; the temperature was substantially the same in the center and outer tubes of the radiator.

Gasoline Price Higher

General Increase of 1 to 1½ Cents in Many Sections Since Last Week

Savannah Price Highest in 10 Years —Possible Federal Inquiry

CHICAGO, Feb. 1—During the last week there has been a general rise in the price of gasoline throughout the country. In Chicago an advance of 1 cent has been made during the past week, bringing it to 17½ cents a gallon. Savannah, Ga., reports the highest price in 10 years, with an increase of 1½ cents to 21 cents happening within the last few days. Word comes from Phoenix, Ariz., that fuel is wholesaling at 20½ cents and retailing as high as 25 cents. The increase in price has been so far-reaching that inquiry has been suggested in Congress.

SAVANNAH PRICE RECORD

Savannah, Ga., Feb. 2—Gasoline is selling for more in Savannah now than it has at any time within the past 10 years. The price has just been increased 1½ cents a gallon by the wholesalers. The retailers immediately jumped the extra price, making the cost to consumers 21 cents a gallon. It is quoted by some at 20 cents on a strictly cash basis. It is announced that the price probably will be 22 cents within the next several days.

Standard Oil officials are unable to state whether the increase was due to scarcity of supply or increase in demand. It is intimated at the offices of the Standard Oil, however, that the price may go as high as 25 cents before there is any tendency to start it in the other direction.

Less than 6 months ago the price in Savannah was 10 cents a gallon. It was then selling in many cities at from 3 to 5 cents more. Retail dealers say they are not responsible for any of the increases and that they made just as much profit when the article was selling at 10 cents as they do with the price at 21 cents.

SELLS GASOLINE AT COST

Phoenix, Ariz., Jan. 31—The gasoline situation in Phoenix is unique. The precious fluid is wholesaling at 20½ cents a gallon and retailing from that price up to 25 cents. And those who charge the higher price are doing pretty near their normal volume of business.

For a long time gasoline sold at 17 and 17½ cents wholesale in Phoenix. The fixed retail price was 20 cents, and was not affected by minor fluctuations in the wholesale charge. All this was changed when the wholesale price went up to 20 cents. Ed Rudolph, the local Ford agent, announced that he would retail at the wholesale price. This has demoralized the retail trade to a large extent.

Rudolph is now the only dealer retailing gasoline at 20½ cents. A number of others are charging from 21 to 23½ cents when 5 gallons are taken, but the motorecyclist who wants 1 or 2 gallons pays at the rate of 25 cents.

In many communities Rudolph would be practically the only dealer left in the gasoline field. But a spark of the old western spirit, so opposed to penny-pinching, survives in Phoenix. Many motorists scorn to change dealers for the sake of saving a few cents now, feeling that the present situation is merely temporary and that selling gasoline at a loss is pretty poor business anyway, not deserving of anyone's support.

ASKS GASOLINE INQUIRY

Washington, D. C., Feb. 1—A broad investigation to determine primarily whether the segregated Standard Oil Companies are boosting the price of gasoline was proposed to the house in a resolution introduced by Representative Dowell, of Iowa, today. The resolution proposed a general inquiry into the production, transportation, refining and marketing of gasoline and other petroleum products to lay bare the causes for the recent advances in the prices of these commodities. Dowell's resolution calls for the appointment of a select committee to be appointed by the speaker of the house and to consist of nine members.

HIGH PRICES FOR CRUDE OIL

Kansas City, Mo., Feb. 2—The price of crude oil in the Kansas and Oklahoma fields advanced 5 cents a barrel this week to \$1.30, the highest since 1902. Last week's raise is the second of 5 cents within 2 weeks. Several of the independent refining companies are paying premiums of 10 and 15 cents a barrel above these prices. Gasoline here remains unchanged, following the 1-cent advance to 16.8 cents a gallon by the independent companies last week. The Standard Oil Co. met this advance during the week.

SHORT GAS MEASURE IN NASHVILLE

Nashville, Tenn., Jan. 31—Nashville car owners have started movements to end two evils. One of them is short measure in buying gasoline and the city, county and state sealers of measures are preparing to begin a vigorous campaign against dealers who are giving customers less than the amount paid for. In a few cases this is intentional, but in general it is due to lack of care given pumps. The county sealer warns motorists that in having gasoline measured by cans, it is safest to have it poured a single gallon at a time. Owing to the fact that the duties of the officials necessitate their being away from their offices the greater part of the time, it has been arranged to have reports of shortages made to Secretary John E. Ott, of the Automobile Club. In this way concerted action can be taken.

Form National Body

Dealers and Garagemen Unite for the Betterment of the Trade

New Organization Succeeds Associated Garages of America

CHICAGO, Jan. 27—The National Retail Automobile Trade Association was formed in this city today to succeed the Associated Garages of America. The new organization has a new plan of growth and will move forward with an extended scope until it embraces the major portion of the motor car dealers, garagemen, repairmen, supplymen, tire store men, tire repairmen, motor liverymen and others.

The Associated Garages of America, from which the new organization springs, was formed a year ago by garagemen, but as it grew it was found advisable to make it a combination of dealers, garagemen and others, and the necessity led to the change of name and bylaws. At this time there are associated with the body the Iowa Retail Automobile Dealers' Association with 800 members, the Garage Owners' Association of Illinois with 300, the Garage Owners' Association of Michigan with 150, the Garage Owners' Association of Ohio with 100, and the San Francisco Garage Owners' Protective Association with seventy, making a total membership of 1420.

In addition to these there are strong but unaffiliated organizations in various parts of the country; some of them are composed entirely of dealers, while others contain both dealers and garagemen; some embrace city membership only, while others cover small territories.

The objects of the organization are the betterment and uplift of the trade. Legislation of a beneficial nature will be promoted and obnoxious laws will be opposed. Steps will be taken to bring the car owner and the dealer and garage man closer together that both may work for their mutual interests. Better conditions in garages will be brought about and business methods throughout the trade will be standardized.

GARAGE LAW OPPRESSIVE

Portland, Me., Jan. 31—Local motor and garage men are very much worried over the new regulations which are being imposed upon them by Building Inspector O'Rourke. According to the rules, they must rearrange their garages to comply with the law, and as some of the premises are old it will mean reconstructing them so as to make them as near fireproof as possible. Some of the garage men say that if they are forced to follow the law to the letter it will mean that they will have to give up business.

New Roamer Car Lines Are Very Similar to Rolls-Royce

Sloping Windshield, Modified Boat Body, and an Option of Color and Upholstering Are Features—Price, \$1,800

A NEW car of striking appearance slipped into the Chicago Automobile Show the middle of the week almost unnoticed, but due to its attractive lines, before the week was over it was commanding large crowds and had created considerable comment.

The car is the new Roamer which is being built by the Barley Mfg. Co., Streator, Ill., for the Thomas, Evarts Adams Co., importers of the Lancia car in New York. This company is to be the selling agent for New York and Boston and will also handle all export business on the machine. The Barley company also manufactures the Halladay car, and outside of the territory to be handled by the importers of the Lancia, the Roamer car will carry the name Halladay Special.

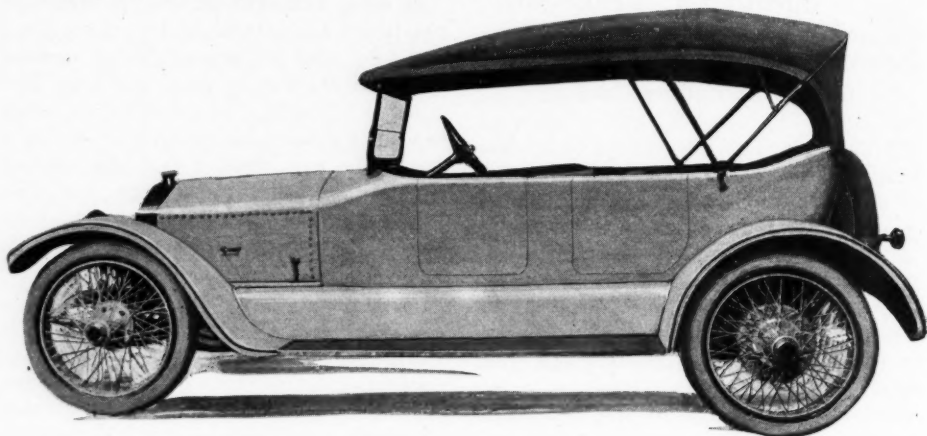
The builder makes no secret of the fact that the car is designed along the lines of the English Rolls-Royce, and it has been produced primarily with the idea of being marketed to that class of motorists which wants something distinctive in appearance and not too large.

Distinctive Radiator and Hood

The radiator and hood design are especially copied from the Rolls-Royce and have the characteristic flat-sided appearance that has always helped to distinguish the well-known English product.

The car sells at \$1,800, and outside of its somewhat different body lines and general exterior appearance, it is constructed of standard parts, such as Rutenber motor, Grant-Lees gearset, and Lavigne steering gear. Bijur starting and lighting, Bosch magneto ignition, and a Stromberg carbureter are among the important accessories.

In standard form the Roamer is equipped with Houk wire wheels, which add materially to the general appearance. The body is somewhat of the modified boat design with the widest point at about mid-cen-



Side view of the new Roamer car that is being built especially for the Thomas-Evarts-Adams Co., New York

ter, and curving and rounding toward the back as well as the cowl. The front seats are divided individually and are almost in the armchair class. There is an aisle between them which permits of access to the back compartment. A slanting windshield and dome fenders do their part in promoting the good looks of the car.

One feature which the salesman can talk when showing the car to the prospect is that any color and upholstery can be secured at the list price. Thus to this extent at least the buyer can have his own ideas carried out.

Among the main constructional features of the Roamer chassis are unit powerplant, with the gearshift in the center and drive on the left, floating rear axle, a wheelbase of 122-inches, three-quarter elliptic rear springs, and 34 by 4 tires.

The motor is a standard Rutenber, block-cast, which with 3¼ by 5 dimensions is said to develop 46 horsepower on the block. The cylinder head is detachable in accordance with the latest ideas of motor designers, this permitting of ready access to the pistons, cylinder walls and valves. The

engine shows nothing out of the ordinary for good practice and is of a size and performing qualities sufficient to handle the machine flexibly as well as affording ample speed as desired. The lubrication is by splash, the pump keeping a constant level under the connecting rods at all times, and also forcing the oil directly to the main bearings, which are three in number.

Cooling Is by Pump

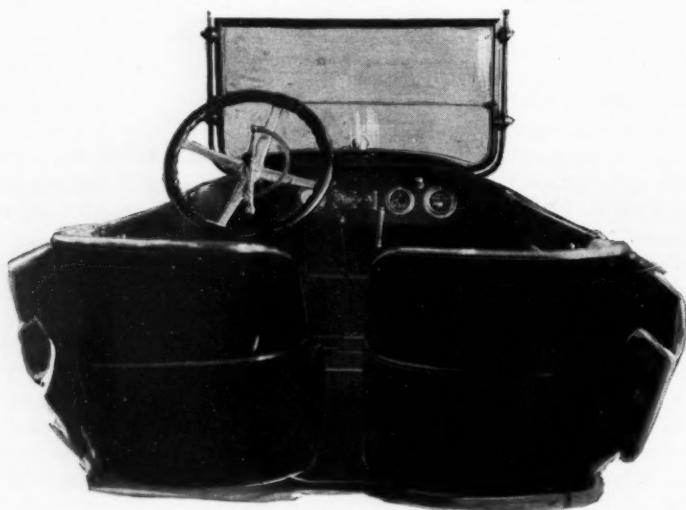
Cooling is positively secured by a rather large pump, driven by shaft from the front gears. The Bosch magneto ignition is entirely separate from the starting and lighting system which is the Bijur two-unit design with the starting motor connecting by the Bendix shifting mechanism with teeth cut in the flywheel. Throwing on the starting current automatically meshes this Bendix transmission to give driving connection between starting motor and engine, and it is just as quick to release once the engine is running under its own power.

In connection with the electric system a Willard 6-volt, 100-hour battery is used, which is of such large capacity as to take care of the trying needs of the electric system adequately.

Gasoline is supplied by a 15-gallon tank carried in the rear, from which the fuel is drawn to the carbureter by the Stewart vacuum system.

Throughout the chassis construction back of the motor, F & S ball bearings are fitted. The gearset is compact in form, and it, as well as the multiple disk clutch, are well supported at the rear of the motor. Three speeds forward are supplied by the use of sturdy gears of 3½ per cent nickel steel.

The drive from the motor unit to the rear axle is simplified by the employment of the Hotchkiss system of propulsion, whereby both torque members and radius-rods are eliminated by giving to the rear



View looking forward in the Roamer car, showing the divided front seats and control features as well as the neatly arranged instrument board. This view also gives some idea of the sloping lines of the body

springs the added functions of drive and torque receptions. The master leaf of each rear spring is made strong enough to do this efficiently. These leaves are 2-inches in width and almost flat, so that their action is on both sides of the horizontal, which tends to minimize the rebound as well as being of benefit to the springs due to the more even action. The springs are overhung from the axles.

The rear unit is built along standard lines with pressed steel housing and the drive shafts take only the drive without being called to aid in supporting the car.

Among the equipment features might be mentioned a flush-type clock, motor driven horn and wire wheel carrier in the rear, in addition to the fittings that are these days taken for granted, such as one-man top, speedometer, tools, etc.

EQUI REACTANCE COIL

Motor Age is advised that the device described in the January 20 issue as the Equi, made by the Equi Light Co., Paducah, Ky., has been changed, the old device that was mounted on the fan and controlled by centrifugal force, having been succeeded by a new device also called the Equi. This is known as a reactance coil with a variable air gap in its magnetic circuit. It is actuated by the magneto circuit and is said to follow closely the fluctuations in the voltage of the Ford magneto due to variations of the engine speed. The design is such that the air gap is widest when the engine is running slowly, thus offering no inductive resistance to the passage of the current, but as the engine speed increases, the gap is shortened by magnetic attraction until it is very nearly closed at high speeds, thus preventing the voltage from exceeding the normal rating of the lamps. Attachment is made on the radiator rod.

MAXWELL PLANT IN CANADA

Detroit, Mich., Jan. 31—In Windsor, Ont., the Maxwell Motor Co. will erect a large plant to take care of its increasing Canadian business, and most likely of its growing export business. Negotiations for a site have been going on for some time and are said to have been completed so that building work may be started within a very short time. Windsor has been the general distribution center for the Canadian business since 1913.

JANUARY SHIPMENTS DOUBLED

Chicago, Jan. 29—Reports from the traffic department of the National Chamber of Commerce give some conception of the greatly increased production of motor cars during the month of January. During the first weeks of the month members of the chamber shipped 12,000 carloads of motor cars, and it is expected 16,000 will be shipped during the month. Last year only 8,300 cars were shipped during the entire month. In other words, shipments have

creased reduction is naturally handicapping railroads who have not enough freight cars to take care of the requirements. The work the chamber is accomplishing is demonstrated by the fact that such railroads as the Santa Fe are hauling complete trainloads of empty cars from California and Texas in order to get them back to the factories as soon as possible. Ordinarily these freight cars would be held and brought back loaded. Many of the factories are being regularly held up on shipments, several not having available railroad

cars to take care of more than 75 per cent of their daily production.

CHICAGO POSTOFFICE ADDS TRUCKS

Chicago, Feb. 1—Fifty-eight new motor trucks were put in service this morning by the Chicago postoffice to replace the horse-drawn vehicles used between the depots and the postoffice and its branches. The new addition makes a total of ninety-six trucks now in use in the local postal service. The first trucks were used to transfer mail from main office to branches.

Federal Government Tests Motor Trucks

Postoffice Official Tells of Their Advantage

WASHINGTON, D. C., Jan. 31—The utility of the motor truck and service wagon continues to be made the subject of exhaustive tests by various of the federal government departments, these tests in every instance, so far, resulting in conclusive proof of the adaptability and economy of such motor units. The latest and most impressive instance of the faith which the government officers have in the motor vehicle for commercial and industrial purposes is afforded in testimony submitted by Otto Praeger, second assistant postmaster general, to the House committee on post-offices and post roads. Mr. Praeger dwelt upon the advantage of the use to the government of government-owned motor vehicles in lieu of screen wagon and city collection and delivery service by horse-drawn vehicles and private contract in the cities of Washington, Detroit, St. Louis, Philadelphia and Chicago.

Representative Martin B. Madden, Chi-

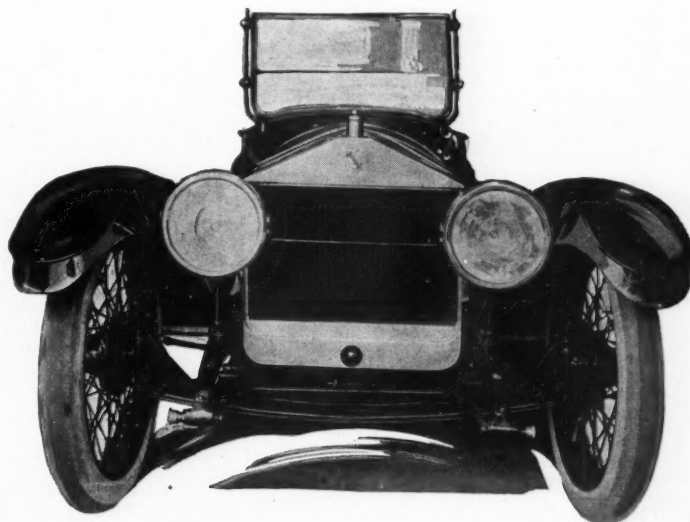
cago, had contended that motor trucks, suitable for postal service, cannot make more than 1.6 miles per hour in the downtown sections of Chicago and therefore that the substitution of government-owned motor cars for horse-drawn contract service does not expedite the mails. Mr. Praeger in reply cited the results of the tests of the Chicago motor service made December 27, last, which showed that even in the more congested or "loop district," in that city the trucks do 5.7 miles per hour. Mr. Praeger emphasized the advantage of government-owned service in providing more rapid and more frequent deliveries, despatches and collections of mail with large savings in cost.

Mr. Praeger submitted general figures as to relative costs in the five cities where motor vehicles now are used, and said Indianapolis would have similar service soon. His figures are shown in the tabulation just below.

City	Cost per annum of service superseded	Cost per annum of combined service	Saving per annum
Chicago	\$ 706,260.48	\$548,270.12	\$157,990.36
Detroit	147,600.40	100,323.64	47,276.76
Philadelphia	235,839.43	132,904.09	102,935.34
St. Louis	195,258.93	110,530.63	84,728.30
Washington	55,730.46	18,501.08	37,229.38
	\$1,340,689.70	\$910,529.56	\$430,160.14

Note—This estimate does not include any saving resulting from the elimination of clerks and carriers whose services were utilized to fill vacancies in other sections of the respective offices.

Front view of the Roamer, which indicates to what extent the radiator and hood follow the lines of the Rolls-Royce. The abrupt edges of the hood of this well-known English car have been pleasantly blended in a similar manner in the new American make





The Readers' Clearing House



SPEEDING UP FORD MOTOR

Plans to Enter Car in Independence Day Races and Wants Data

Chicago.—Editor Motor Age—I am rebuilding my Ford car into a racer to enter the Ford races of July 4, 1916, and would like some suggestions that will help me to get speed. Kindly tell me whether or not there is any manufacturer that makes special camshafts for Ford racing cars. Please give name of same.—J. J. Garrison.

The first step to be taken is to remove all the unnecessary parts, such as the running boards, fenders, body, etc. The steering post is dropped slightly and bucket seats fastened to the frame. A pressure fuel feed system is fitted and a pump attachment for forcing oil to the motor crankcase.

The motor then is disassembled and the bearings carefully fitted, the main bearings being worked in by turning the flywheel by a belt for 4 to 6 hours.

The connecting rod bearings are cut with oil ducts to insure good lubrication. The oil feed pipe which passes through the motor is made larger, and with openings about equal distances for each connecting-rod drop. The funnel attachments are made five to six times larger than the ones supplied.

The piston rings are carefully lapped in with an old piston and then fitted to the regular piston. About 3/64 to as much as 1/8 inch of metal is removed from the cylinder head, this work being accomplished easily, for the cylinder head is removable. The flywheel is made a little larger in diameter to get added weight. With the above changes the compression should be in the neighborhood of 60 to 75 pounds per square inch.

The present intake manifold is discarded and a brass one about 1/4 inch larger fitted, care being taken to see that the inner surface of the header is smooth. The high-tension magneto has been found to give better results than the system employing coils. The make of carburetor and magneto is entirely one of personal choice, as many of the prominent makes have been found to give excellent results.

The camshaft must be reset and only experiment gives the proper timing. Different settings are tried and the one giving the best results finally adopted. Should the clutch slip, it is best to insert another disk than to take up on the spring, it is stated.

We would refer you to the Clearing House columns of the advertising pages of Motor Age for the names of manufacturers of special camshafts for Ford racing cars.

Propelling a Motor Ice Boat

Two Rivers, Wis.—Editor Motor Age—I am building a motor ice boat and intend to use a 7-horsepower twin-cylinder air-cooled motor for power. What type of drive would be most

suited for this craft, an aero propeller or a spiked wheel?

2—From what firms can such propellers be purchased and at what cost?

3—Which would be the better place to mount the propeller, the forward or rear end of the boat?—Walter E. Suettinger.

1—The aero propeller would probably be best. It would give you more speed.

2—We do not know, unless one of the aeroplane manufacturers could supply you.

3—Mount it forward.

HOTCHKISS DRIVE EXPLAINED

Torque and Car Propulsion Taken by the Springs in This Design

Colesburg, Ia.—Editor Motor Age—What is the Hotchkiss type of drive, and explain its action?

2—Explain by diagram the difference between a shunt and series wound motor.

3—After the ammeter has been shorted so the hand is on the discharge side, how may it be brought back to its right position?—M. S. Roling.

1—The Hotchkiss drive is the type in which the propulsion of the car and the torque due to the rotation of the driving member are taken through the rear springs. The main leaf of each of these is made strong enough for these added duties, and the construction does away with torsion tubes, torsion arms, or radius rods. It is obviously a simpler type and somewhat lighter than the other forms of drive. To make it clearer, Fig. 1 is published. This is a typical layout of a chassis employing the Hotchkiss system.

2—Diagrams of the shunt and series wound motors shown in Fig. 2. At A is illustrated the scheme of the shunt machine. In this, the field winding is con-

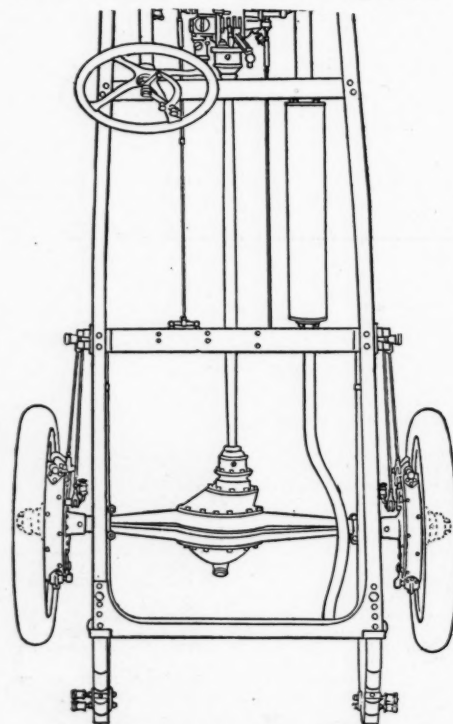


Fig. 1—Typical layout of Hotchkiss system of drive

nected in parallel with the armature. The series type is indicated at B, and it will be apparent that the field and armature windings both are in series, causing the same current that goes through the armature to also excite the field.

3—If the instrument is not damaged, the hand has probably stuck, and it will only be necessary to dislodge it. In most ammeters there is a stop at either extremity of the dial, and sometimes when the hand swings over violently, it catches on this stop, making it necessary to take off the glass and release it.

NO HARM IN USING ETHER

Has No Injurious Effect on Engine if Used Only as a Primer

Maplewood, Ore.—Editor Motor Age—I have been told not to prime my car with ether in order to get started in cold weather, as this method is injurious to the motor. Is this so? If so, what harm is done by it?

2—Does alcohol injure the motor?

3—Give the firing order of the Cadillac eight and the Packard Twin Six.

4—Give the most used firing order for six-cylinder motors.

5—The Goodyear people give the following guarantee:

34x4 tires—700 lbs.

34x4 1/2 tires—900 lbs.

35x4 1/2 tires—800 lbs.

Why is it that the 34x4 1/2 tire will sustain 100 pounds more weight than the 35x4 1/2? One would naturally think the larger tire would carry the most.

6—Is there not a tendency in tire sizes to decrease the diameter and increase the width? Why is this? I like this, as I think a small wheel looks better than a large one.—H. H. Russell.

1—If used judiciously, no harm is done by it.

2—No.

3—Referring to Fig. 3 the diagram indicated at A is for the Cadillac eight firing. The figures indicate the order of firing. Diagram B is that of the Packard Twin Six.

4—The most general firing order is as follows: 1, 4, 2, 6, 3, 5.

5—We are unable to give you this information. Write the Goodyear Tire and Rubber Co., Akron, O.

6—We do not believe there is any great tendency to decrease the diameter and increase the width, but there is a greater number of users of oversize tires, which may have given rise to this idea of yours. For instance, where 32 by 3 1/2 tires have been used, there are cases where 33 by 4 tires have replaced them on the same rims. These tires look larger, though the diameter is very little greater, and the result is a tire that has the appearance of being smaller with larger width.

Car Ignorance Defended

Keenes, Ill.—Referring to J. C.'s opinion, Motor Age, issue January 6, page 44, regarding the many foolish questions asked: He states that 30 per cent of the car owners do not know how to make carburetor and ignition adjustments. This is

nearer 90 per cent in this locality. I agree with him that there is a large number of car owners who should not be allowed to drive cars. In my 3 years' experience in garage work I have found that there are some unscrupulous garagemen who instill all kind of foolish notions and ideas into a motorist's head. A man who attends to his business 8 to 12 hours daily has no time to bother his brain with motor mechanism, but if he would only use good sense and find an honest mechanic, one who would not rob him, and take his car to him weekly, letting it alone between times, motor troubles would soon vanish.

It is a fact that the storage battery is a bugaboo to most motorists because there are so many things to go wrong. It is not expected that every owner will be able to repair it. I have known of batteries going bad in 3 months with almost expert attention.

J. C. thinks a man should know a car from A to Z in order to be a competent driver. He is wrong there, as I know good drivers who do not know beans about a motor car.—C. R. K.

USES OF MULTI-CYLINDER ENGINES Why Trucks and Racing Cars Have Not Adopted Them

Nampa, Ida., Editor Motor Age—Why is it that six and eight-cylinder motors are not used in trucks and in racing cars?

2—If a six-cylinder motor is desirable in a touring car, why is it not equally desirable in a truck?

3—Does Motor Age consider trailers practical for loads up to, say 1,000 pounds, and does it consider a set of heavy rear axle wheels with a frame to be fitted on to any light car frame with its rear wheels off, but to the axles of which are fitted small sprockets, also practical?—E. F. Larson.

1 and 2—The eight-cylinder motor is a comparatively new development, but it may soon break into racing motor design. Sixes have been and are used in both racing cars and trucks. The main objects of added cylinders are greater smoothness and flexibility and these are not regarded as a necessity on a truck or racing car either, for that matter.

3—Either of these constructions is entirely practical.

MAJORITY FAVOR MANUAL ADVANCE Automatic Regulation of the Spark Complicates Matters Somewhat

Lake Geneva, Wis.—Editor Motor Age—State the exact weight of the following cars, fully equipped and without water or gasoline: Model D-45 Buick five passenger touring, model 60 Empire seven-passenger touring, model 22 Biltwell, five-passenger Velle, model 6-42 Paterson five-passenger touring, model 38 Fleetwood, Paige five-passenger touring, and Hudson Super-Six, phaeton body.

2—What are the advantages and disadvantages of the automatic spark control over the manual control?

3—Is the automatic control as used by the leading motor car manufacturers reliable and positive in its action, or is it liable to get out of order easily and thus disorganize the system?—Enquirer.

1—The Buick model weighs 2,740 pounds with four quarts of oil but no water or gasoline, the Empire Six, five-passenger model, 2,790 pounds; the Velle, 2,650 pounds; the Paterson, 2,740 pounds; the Paige-Detroit, 2,800 pounds; and the Hudson Super-Six, 3,220 pounds.

2 and 3—For the inexperienced driver

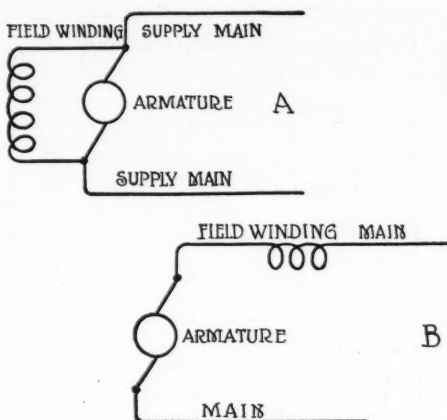


Fig. 2—A indicates a shunt wound motor, and B, a series wound

the automatic advance is of especial value since it properly takes care of the ignition requirements at all engine speeds. One who is not a very good driver is apt to have the spark retarded too far when going at high speed, or have too great an advance for pulling and slow running. On the other hand, the automatic advance is mechanical and cannot take care of every contingency as well as an experienced driver can. There is also more of a chance for it to get out of order than the manual advance, and being less dependable and more of a complication, most makers adhere to the hand advance. In fact, you will find very few cars in which there is not provision for spark regulation by the driver.

FORD CAR REFUSES TO PICK UP Probable That Spark Control Levers Are Out of Adjustment

Iowa, La.—Editor Motor Age—I am having trouble with my 1913 model T Ford. The engine will not pick up speed unless the spark lever is pulled or advanced as far as it will go on the quadrant. If the spark is advanced about half way of the quadrant the engine will miss and sometimes stop firing altogether, and when it does fire the exhaust sounds as if the spark was retarded to the full limit, and the engine slows down until the speed is checked to about 10 miles per hour. Before this the car would make about 25 miles an hour with spark set in this position and the air lever set about six notches, but now it is necessary to advance the spark the full limit and open the air or gas about half way. This car is equipped with an Air Friction carburetor, Marion master coil, Heinze box coil. Both the battery and magneto are used for ignition. The engine acts the same way on either the battery or magneto.

I have put on new wires, but it has not helped any. Does Motor Age think a new timer would help. The one that I am using seems to be in good shape and does not seem to be warm.

For about the last year or so the engine has missed when running at about 20 or 25 miles per hour, exploding every little while. I put in new valves, new rings, new wire and new timer, also new Master coil, and have not eliminated this trouble. The compression is good. Have examined the intake manifold and gaskets, which are all in good shape and seem to fit snugly. Also had the connecting rod in cylinder No. 2 to pound the rabbit out twice in 10 days. I had plenty of oil in the base, but when I put in the last connecting-rod I found the oil thick like compression grease. I have tried adjusting spark coil and carburetor, but this does not help any.

2—Kindly advise me where I can purchase a second-hand rear axle housing for a 1913 model Ford Car, also a drive shaft tube and other parts for same.

I have bought a 1913 Ford and want to rebuild it into a raceabout.—R. C. Irwin.

1—Probably the spark control rods or lever are not in proper adjustment, thus preventing you from advancing the spark

far enough even when you bring the lever to the limit of its action. You can remedy this in two simple ways. One is to bend the spark control lever that is under the steering wheel toward the center of the car, thus allowing it to be advanced further relative to the rest of the linkage. The other is to bend the spark rod running from the steering gear base to the timer. By doing this you shorten the rod and advance the timing.

2—You can secure an axle housing from any Ford branch, or you might be able to get one by referring to some of the concerns advertising in the Clearing House pages of the advertising section of Motor Age.

ANGLE BETWEEN CYLINDER BLOCKS Eights and Twelves are at 90 and 60 Degrees, Respectively.

Cedar Falls, Iowa—Editor Motor Age—Does a V with two cylinders, set at 90 degrees, fire regularly, that is, every 360 degrees? If so, please explain.

2—Do eight and twelve-cylinder V motors fire at regular intervals? Explain how, if they do.

3—Are the cylinders of an eight always set at 90 degrees, and those of a twelve at 60 degrees? If so, why?—Holger G. Thuesen.

1—Yes, such a V-engine would fire every revolution in one cylinder or the other. In a four-cycle motor, each cylinder must fire every two revolutions. Assuming that the piston is at the top of its compression stroke, just at the point of going down on the combustion or working stroke, it will come up again at the end of the exhaust stroke. These two functions take one revolution. Then it goes down again to draw in the new charge, and comes up to compress this. Another 360 degrees have now been covered, when the engine is again ready to fire in this cylinder.

2—Yes. In an eight, the firing occurs every 90 degrees so that all eight will fire in two revolutions, for reasons above. In a twelve, one cylinder fires every 60 degrees so that all twelve will fire in 720 degrees, or two revolutions. If they did not fire regularly, the balance would be upset.

3—The cylinders of an eight should be at 90 degrees so that one cylinder can fire every 90 degrees, and the cylinders of a twelve should be at 60 degrees for the same reasons. This is always done.

TWO GEAR RATIOS IN HUDSON TEST Reason for Apparent Discrepancy Between Specifications and Speed Attained

Fort Dodge, Ia.—Editor Motor Age—In the issue of Motor Age of December 30, the article on the performance of the Hudson Super-Six at Sheephead Bay states that the one-hour try-out with Mulford, the average speed of the motor was about 2,600 revolutions per minute. Accepting the figures given elsewhere in the same issue under the heading "Specifications, American Passenger Cars, Etc.," it appears to me that with the stock ratio of 4.45 to 1 and 34 by 4 tires, the engine speed should have been nearer 3,600 than 2,600 revolutions per minute.

1—Will Motor Age kindly explain this apparent discrepancy, or give the figures used in determining engine speeds in contests of this kind?

2—Does the figure 34 by 4 given as a tire dimension denote a tire measuring 34 from tread to tread or from bead to bead?

3—In looking through the annual show numbers I note that the weights are omitted. I might suggest that the number of people, who are car buying prospects who rely on the specifications given in these issues of Motor Age is

quite surprising and it is only fair in view of the present trend in motor car development that manufacturers should submit verified weights as well as wheelbase and gear ratio specifications. The weight seems to be the hobgoblin many manufacturers are afraid to meet.—R. H. C.

1—The apparent discrepancy can readily be explained by telling you that for the speed trials with this car the gear ratio used was 3.5 to 1, whereas for the acceleration tests, a ratio of 4 5/11 to 1 was used. Both of these are stock ratios and either can be specified by the purchaser to meet any conditions.

2—The dimension you mention refers to the outside diameter of the tire.

3—Motor Age does not publish weights because it is extremely hard to secure correct ones. Many give the weight without tanks filled, while others give it with everything ready for the road. It is because of the varying nature of the figures that Motor Age has refrained from publishing them, unless specially given by the manufacturer, and in special instances where we are sure of their authenticity.

REDUCING THE WHEEL DIAMETER

This Lowers the Speed Ordinarily, Although It Might Help Flexibility

Tipton, Ia.—Editor Motor Age—Supposing you have a car with a 300-cubic inch motor, and 36 by 4 wheels. If the car will go 50 miles per hour and you change to 34 by 4 wheels, how much faster will the car go? Will it increase the speed 5 miles per hour?

2—If magnalium pistons are put in the car and lighter connecting rods, say from 4 pounds to 3, and get the motor turning over 500 revolutions per minute faster, should the gear ratio be changed?

Supposing a car has a 3 1/2 to 1 gear, would it be better to put in a 4 to 1 gear? Many manufacturers which use high-speed motors lower the gear ratio.—G. H. Diven.

1—It will not go as fast, as you have reduced the ratio. The smaller the wheel diameter, the faster the engine has to turn to cover given distance.

2—It might not be necessary. The lower ratio would probably give better results as regards flexibility, although it would cut down the speed.

HOW TO RESET TIMING ON FORD

Small Punch Marks Show Meshing Point—Use of Chamois Strainer

Wenatchee, Wash.—Editor Motor Age—Kindly explain in detail how to time a Ford motor after taking out the camshaft. The camshaft was removed without marking it, and I do not know just how to re-time it.

2—What is the wheelbase of the new Packard Twelve?

3—Kindly explain why gasoline, flowing through a chamois skin, is liable to cause static electricity and explode if the funnel through which it is flowing is not grounded on the tank.—Oval Franz.

1—There is a small punch mark on both the large and small timing gears. In fitting the large gear to the camshaft it is important that the first cam on the shaft points in a direction opposite to the side of the large gear carrying the punch mark. The large and small gears then must mesh so that the tooth marked on the small timing gear will come in between the two teeth on the large gear, the two marks meeting while teeth are meshed.

2—Two wheelbases are offered, 125 and 135 inches.

3—Unlike water, gasoline is not a con-

Communications Received and in- quiries Answered

J. J. Garrison.....Chicago
Walter E. Suettinger.....Two Rivers, Wis.
M. S. Roling.....Colesburg, Ia.
H. H. Russell.....Maplewood, Ore.
E. L. Kerfoot.....Hutchinson, Kan.
R. C. Irwin.....Iowa, La.
M. Weeks.....Granville, Ill.
E. F. Larson.....Nampa, Ida.
Enquirer.....Lake Geneva, Wis.
Holger G. Thuesen.....Cedar Falls, Ia.
R. H. C.....Fort Dodge, Ia.
J. B. Nathan.....Chicago, Ill.
G. H. Diven.....Tipton, Ia.
George H. Foote, Jr.....Daytona, Fla.
Oval Franz.....Wenatchee, Wash.
Jesse Hall.....Sturgis, S. D.
B. G. Meyers.....Alexandria, Minn.
C. M. H.....Athens, Ala.
G. B. Beaver.....Providence, R. I.
Charles W. Black.....Green Valley, Ill.
William C. Johnson.....Florence, Wis.
Worried.....Watertown, Wis.
F. B. Mariette.....Monticello, Ark.

Communications which are not signed with the inquirer's full name and address will not be answered in this department.

ductor of electricity. It is a well-known fact that a spark of electricity may be generated by the friction of rubbing two non-conductors together. If a non-conductor is in contact with the ground or a large metallic body, the amount of static electricity generated is absorbed and does not make its presence known. However, if the non-conductor is in contact with only a small amount of metal, such as the funnel or faucet, this metal becomes highly charged with electricity and will discharge with a good-sized spark if another metallic substance is brought in contact with it, or very close to it. Let us assume that you are about to fill your tank. The funnel is in the tank. Within the funnel is the chamois strainer. The gasoline is turned on and as it pours through the chamois it generates static current. Static electricity may be defined as electricity at rest. The funnel being charged with static electricity, if fitting securely into the mouth of the tank, is grounded and no spark results. Let us suppose that you did not allow the funnel to rest inside the nozzle of the tank, but that you or someone else held it in midair, so that it rested free of the sides of the tank. We have seen that gasoline, a volatile liquid, passing through chamois, forms static current, which charges the funnel. When the amount of electricity is sufficient to jump across from the funnel to the tank, which is the nearest ground in this instance, a spark is caused, which passes across the opening between the end of the funnel and the opening into the tank through which gasoline vapor is rising, and an explosion results.

Helpful E. M. F. Hint

Granville, Ill.—Editor Motor Age—Referring to Charles F. Smith's communication in the November 11 issue. His trouble is identical with the trouble I have had with my 1911 E. M. F. and I paid out nearly \$170 trying to get rid of the knock.

The cross member in front, or the front engine support, is a channel iron that fits

between the flange of the front crankshaft bearing and the crankcase. This flange is fastened with five bolts and when they work loose, the front end of the motor jumps up with a loud thump. Under load this is as described, a good strong man with a mallet and as regular as can be, but when idling the thump is only occasional and irregular. I suggest that C. F. S. raise his hood and watch the front end of his motor. On mine I tighten the flange bolts and the noise is gone until they loosen again.—M. Weeks.

BENZINE AND NAPHTHA FOR FUEL

Benzine Is Less Volatile Than Gasoline, and Some Grades Leave Carbon

Chicago, Ill.—Editor Motor Age—Kindly give me your opinion as to the value of benzine to be substituted for gasoline.

2—Will it be dangerous to use benzine?

3—Will it injure the motor more than gasoline?

4—Would it be cheaper to use benzine than gasoline?

5—Kindly give your opinion as to the use of naphtha.—J. B. Nathan.

1—Benzine is a richer fuel than gasoline, and if properly carbureted, is said to give more power. It starts easily in summer, although not so easily as gasoline. In winter it is advisable to use gasoline.

2—Benzine is not so volatile as gasoline, but owing to the greater number of heat units it contains it will develop more power. It does not evaporate so readily as gasoline. There should be no danger from using it if handled judiciously.

3—A disadvantage incidental to its use has been that owing to it being richer in carbon than gasoline it would deposit more of this substance on the piston head and interior of the combustion chamber. While this may be true of a poorly refined benzine, and when the mixture proportions are not correct, it applies equally well when low grades of gasoline are used and when the mixture of gasoline vapor and air supplied the cylinders is too rich.

4—Benzine sells, retail, in Chicago, at 17 cents a gallon, while gasoline is 20 cents. It should require no more benzine in volume than of gasoline to run the motor a given time.

5—The term naphtha covers a wide range of petroleum distillates, and the chances are that if you went to a shop to buy naphtha you would get gasoline, or a hydrocarbon very nearly resembling it. The naphtha usually referred to is a fuel slightly lower in gravity than gasoline and the results from it should not be much different than those with the use of benzine.

Aluminum Adaptable to Any Motor

Daytona, Fla.—Editor Motor Age—Why should not the average six-cylinder motor use aluminum alloy, whether a high-speed or a low-speed motor?

2—I recently purchased a six-cylinder car from a Detroit manufacturer, who claimed this alloy does not work so well in a medium-speed motor. Please explain why. In another 6 months more car manufacturers will be forced to use this alloy. Why not now?—George H. Foote, Jr.

1—We do not know of anything against it.

2—Probably the salesman needed some arguments. They may not be forced to use aluminum, but there is every evidence of its increasing popularity. There is no engineering reason for aluminum being more suitable for high-speed than low-speed engines.

N. A. C. C. AND ADVERTISED POWER Reader Has Difficulty in Determining the Apparent Discrepancy in Figuring

Athens, Ala.—Editor Motor Age—Explain why the S. A. E. horsepower rating of the various cars differs so from the advertised horsepower of the makers of the cars.

2—If the advertised rating of makers is fair, or an accurate rating, then it would seem that the S. A. E. rating is misleading, or vice versa. —C. M. H.

1—The horsepower rating formerly known as the S. A. E. now is the N. A. C. C., having been adopted by the National Automobile Chamber of Commerce. The formula, however, is the same. The reason N. A. C. C. horsepower rating differs from the advertised horsepower of cars is that the former is the horsepower developed at 1,000 feet per minute piston speed. A great many phases of the subject were considered before the formula was adopted. The formula follows:

$D^2 N$

— horsepower at 1,000 feet per minute piston speed.

D is the diameter in inches and N the number of cylinders. From this it will be seen that the stroke is not taken into consideration, but the formula holds good with all engines, when they reach 1,000 feet per minute piston speed. For example, the pistons of an engine with a 6-inch stroke travel 1 foot every revolution of the crankshaft and when the engine is turning over at 1,000 r.p.m., the pistons are traveling 1,000 feet per minute. However, when the engine reaches a higher number of r.p.m. the horsepower increases, and the advertised horsepower is that attained when the engine's maximum r.p.m. is reached. In engines with a stroke of less than 6 inches the r.p.m. exceeds the number of feet piston speed per minute.

2—If one thoroughly understands the formula there is nothing misleading about it.

NO TROUBLE WITH THE PISTONS Has Wrong Idea of Cause of Engine Stopping—Motor is Cold

Providence, R. I.—Editor Motor Age—I have a new model of a popular make which is fitted with aluminum alloy pistons. During the cold weather I have the following trouble: Upon starting the car in the morning, or after it has been standing exposed to the cold for a considerable time, the motor will run for about 30 seconds and then suddenly stop in a manner very suggestive of stuck pistons. After a minute or 2 I can start the motor again and it will repeat the above performance five or six times until thoroughly warm, when everything goes smoothly.

My solution of this difficulty is that the cylinder blocks, being surrounded by water which is at least ice cold, do not expand rapidly enough for the piston which, due to the greater conductivity of its metal and consequently its more rapid expansion, reaches a diameter too great for its far travel in the

cylinder until the latter can be thoroughly warmed up.

1—What does Motor Age think as to the advisability of fitting castiron pistons to this motor for winter use, reserving the aluminum ones for summer use? Will the increased piston weight damage bearings, crankshaft and rods, or will it produce serious vibrations?

2—Is there any other method of stopping this annoying trouble?—G. B. Beaver.

It is quite impossible that the pistons have anything to do with the trouble you are having. It is due to the adjustment or action of the carburetor, which does not vaporize the fuel or give a rich enough starting mixture. Motors often act in this manner when they are extremely cold, and until they heat up sufficiently to properly take care of the fuel.

A DIRECT CURRENT IS REQUIRED Cannot Charge Battery From Ford Magneto—Gives Alternating Current

Florence, Wis.—Editor Motor Age—What kind of current does a Ford 24-volt magneto generate, direct or alternating?

2—Could a Ford magneto be used to charge a storage battery, the battery in turn to be used for individual house lighting?

3—What kind and size storage battery should be used to operate four or five 6-7-volt, 21-candlepower, 3.5-ampere bulbs, battery to be charged once a week?

4—What brand or make of battery would you recommend?—William C. Johnson.

1. Alternating.

2. No, the Ford magneto cannot be used with a storage battery unless you transform the current to direct. A storage battery requires direct current.

3. Take this up with a storage battery maker direct. It is a question that is out of our province and you will get definite details from the manufacturer.

4. Any of the well known makes would prove satisfactory.

MEANING OF ENGINEERING TERMS Theoretically Perfect—Combustion Chamber is Spherical—Gyroscope for Racers.

Alexandria, Minn.—Editor Motor Age—Does one horsepower mean that a certain amount of power can pull 33,000 pounds 1 foot per minute?

2—Would there not be an advantage in having a concave topped piston? Would it not give more force on the explosion stroke?

3—Explain the meaning of torque, counterbalance, and the Hotchkiss drive.

4—Has a gyroscope ever been used on a light racer to keep balance on curves?

5—How light could a Ford chassis be made by using aluminum where possible?—B. G. Meyers.

1. Yes.

2. Theoretically, the more nearly spherical the combustion chamber is, the greater the efficiency of the engine. Hence, a concave head is a step in the right direction.

3. Torque is the twisting effort. Specifically, it may be defined as the product of the tangential force acting by the radius. A counterbalance is a weight or force balancing another force. When we say that a shaft is counterbalanced, for instance, we mean

that the forces set up by the rotating and reciprocating parts are compensated for by counter weights on the shaft. The Hotchkiss drive, so called, is the type in which the rear springs are made strong enough to take the torque and the propulsion of the car.

4. Not to our knowledge.

5. It would be utterly impossible to be specific on this point. The amount of weight reduction would depend entirely on the number of parts made of aluminum, the design of these parts, etc.

Short Circuit Depletes Battery

Watertown, Wis.—Editor Motor Age—We have a 1912 E-M-F 30 touring car fitted with Splitdorf coil and magneto. When the switch is on the magneto side part of the current flows through to the dry cells and drains them. Where can we look for the trouble? The coil is in good shape and also the wiring to all appearance.—Worried.

This is probably due to a short circuit somewhere in the wiring. It would be advisable to rewire the ignition system.

Four-Cylinder Timing 1-3-4-2

Green Valley, Ill.—Editor Motor Age—An Overland car, recently overhauled, fires 1-3-2-4. When No. 1 fires, No. 3 does not, and when No. 3 fires No. 1 does not. What is the trouble? Is it in the distribution, or where is it?—Charles W. Black.

The whole trouble is that you have the firing order wrong. The motor should fire 1-3-4-2, in which case you will undoubtedly eliminate the trouble you mention.

Do Not Disconnect the Battery

Monticello, Ark.—Editor Motor Age—Kindly explain why a generator on a Studebaker car or any other car does not overcharge the battery.

2—Would it be injurious to the generator to run with the battery disconnected? If so, how would it damage the generator?—F. B. Mariette.

1—A regulating mechanism of some form or other is applied to the system, which prevents this.

2—Yes. It would burn out the windings.

Disciple of Isaak Walton

EDITOR Motor Age—Would some reader of Motor Age living in the foothills of the Rockies in the vicinity of Denver inform me as regards fishing conditions such as the size of the lakes, how many, and with what kind of fish they are stocked. I am looking for a good place to spend the coming season. Any information will be gladly received.—D. P. Gilmartin.

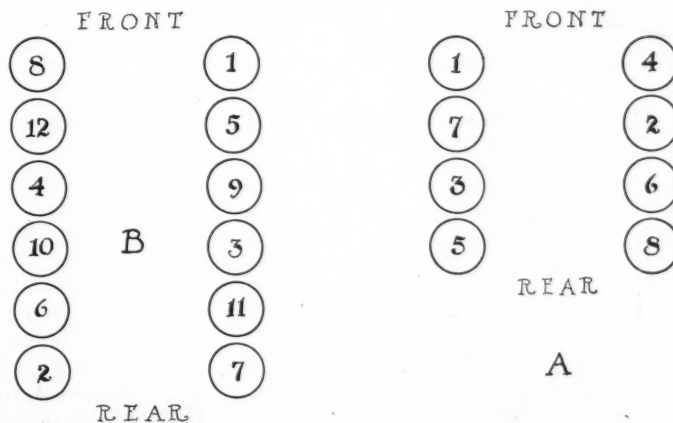


Fig. 3—Diagrams to indicate the firing order of the Cadillac eight at A and the Packard twin-six at B



The Motor Car Repair Shop



Remedies for the Carbon Deposit Bugbear

It is pretty generally understood that carbon deposits within the motor car engine are the result of improper combustion of the fuel mixture, primarily. When the proportion of gasoline to air is too great there is usually a strong tendency to carbonization, such as shown in Fig. 1. The lubricating oil sometimes has considerable to do with the amount of carbonization, but analyses of the carbon residue taken from engines shows that there is less oil residue usually than there is other foreign matter. Indeed, it is revealed by such analyses that a much larger percentage of road dust is contained than oil residue, this dust being supposedly due to the floating matter in the air which is drawn in through the carbureter. This road dust mixes with the pasty mass and forms a residue that hardens on the inner cylinder walls.

Carbon Forms in Short Time

After a motor has been in service for some months, the effect of the carbon usually becomes apparent unless the owner has always been very careful of the mixture and kind of oil used. But even then, knowing that such a great proportion of the deposit is road matter, it at once becomes apparent that a certain amount of carbonization, or what might be called miscellaneous incrustation occurs.

It has come to be a common expression that motor car operators "do not get the same response from their engine that they did when it was new," and this expression, or variations of it, usually come when the car has not been in service more than a few months. There seems to be nothing wrong with the car, yet it does not respond readily to the throttle and is very likely to overheat. When these symptoms are noted they indicate a run-

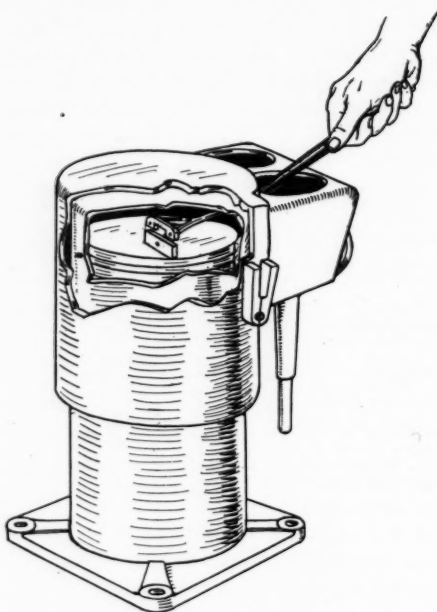


Fig. 2—Illustrating method of using expanding carbon scraper



Fig. 3—Several forms of scrapers to get into a variety of nooks and corners in the cylinders

down condition of the engine, resulting in most cases from accumulations of carbon. Granting that the surest way to clean the inside of an engine thoroughly is to remove the cylinders, if the head is cast integrally with them, or of removing the head if that is a separate casting, to expose all parts, there are nevertheless other methods recommended that may be depended upon to reduce carbon.

Carbon solvents of a secret composition are to be found on the market that are supposed to soften the carbon and permit it to be blown out of the cylinders when the engine is next started after an application. While some of these compounds may have all the merit claimed for them, it is doubtful if all of them have, but any of them, no doubt, will soften carbon so that it may be readily removed by scraping. In using a solvent, the piston is brought up to the end of the compression stroke when both valves are closed; then a definite quantity of the solvent is poured in through a valve cap or spark-plug opening. After all cylinders are subjected to a 2 to 6-hour treatment, such as has been described, the engine is started

and it will be noted that the exhaust is very smokey and filled with carbon particles.

Scrapers of simple form may be introduced into certain types of cylinders, especially those of the L or T-head form. These scrapers, forms of which are shown in Fig. 3, are introduced into the cylinders through the spark-plug hole, if this accessory is placed in a position that communicates directly to the inside of the cylinder, or to the top of the piston.

In the L-head types of engines, the first step is the dismantling of the inlet and exhaust piping and the removal of the valve caps and valves, although if deposit is not extremely hard, or present in large quantities, one often can manipulate the scraper in the valve cap openings without removing piping or the valves.

Beginning of Scraping Process

Beginning with the first cylinder, the crank is turned until the piston is at the top of its stroke, when the scraper may be inserted, as shown in Fig. 4, and the operation of removing the deposit begun by drawing the tool toward the opening. Much of the carbon can be taken out with this tool, but a piece of cloth or waste may be placed on the end of a wire, then dipped in kerosene and used to clean out the cylinders. With the T-head construction it is possible to force a ball of waste from one valve port to the other.

These tools, or scrapers may be made by any mechanic, but patented forms are available that have merit. The tool shown in Fig. 2 is one of these special scrapers. This tool is inserted, the piston brought up on the compression stroke, and then the expanding bar of the scraper is operated to make the scraper part conform to the size of the combustion chamber.

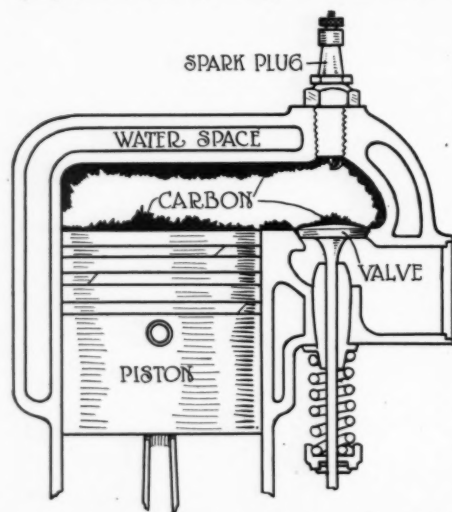


Fig. 1—Showing how carbon forms on piston heads top of cylinders and valves

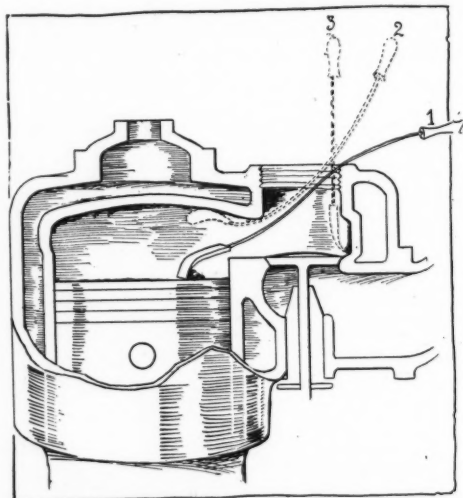


Fig. 4—Depicting ways of scraping carbon from various points in combustion chamber

Fitting the Car to the Driver

By William K. Gibbs

ARBITERS of fashion have chosen to enter a new sphere, but in making this departure they have shown better judgment than has marked their fancy in tailoring clothes. The new realm into which they have introduced themselves is that of the modern motor car, and by modern I mean the up-to-the-minute motor vehicle—the 1916 car. No longer has the driver's compartment anything in common with the English cut in clothing, except perhaps in a few rare instances.

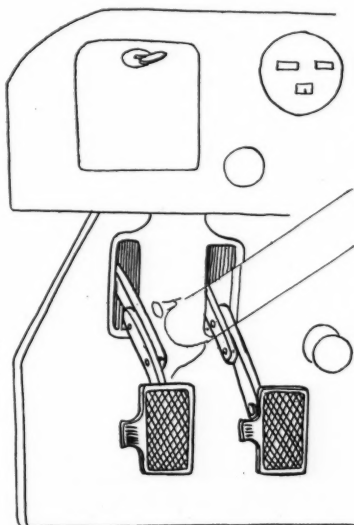
I don't know that any of the old school of motor enthusiasts ever became so proficient in feats of contortion through long practice in depositing themselves behind the steering wheels of now antiquated models of motor cars, that their services were sought by booking agents, but those who have driven cars since the early days of motordom, no doubt could qualify as curtain raisers at most of the vevil theaters without much coaching.

Early Motorists Appreciate Change

Only those who took the vows of motoria several years ago can appreciate the latest efforts of motor car body designers to fit the car to the driver. The man who pilots a 1916 model as his first car will not understand the tortures his fellow motorists of the classes of '08, '09, '10, and so on, endured until they schooled themselves in the art of feeling small so as to fit into the space left back of the steering wheel. With the early motorist it was the old story of Cinderella. Getting back of the steering wheel has been a great deal like trying to put a No. 10 foot in a No. 5 shoe, but all has been changed now, as a close study of the 1916 crop of debutantes will show.

Not so many years ago, when drive was almost always on the right and the brake and gearshift levers were convenient to the right hand of the driver, most of the difficulty arose from the fact that the driver must step over the feet of the

passenger next to him to alight from the car, and also from the fact that there was none too much room between the wheel and the back of the seat, at best. Then came the left drive, with control in the center of the car. The popular mounting of the control at first and the one still followed in many cars, was about midway between the dash and the front of the driver's seat, a position that monopolized



This shows one of the methods by which pedals may be adjusted

a good share of the available space in the front compartment, making accessibility to the position back of the steering wheel anything but convenient.

Since the inception of center control a few designers have seen fit to locate the levers so as not to obstruct the passageway. A number of cars now have these levers in a little recess cut between the front seats. This is found only in cars without divided front seats. With the aisleway between the front seats coming into popularity it is obvious that this location for levers is not ideal. Some cars are found with the levers close to the dash—some even under the dash, where space will permit.

Door on Driver's Side Widened

Finally designers have seen the light of understanding and have arrived at the conclusion, somewhat tardily, that the left front door is the logical place for the driver to enter the car. It is difficult to understand why this did not occur to them sooner. Making the driver crawl over the passenger beside him, or requiring the passenger to alight so that the driver, after he has tied himself into a knot to get past the control lever, may get out of the car, is about as sensible as it would be to require the passengers in a limousine to slide down a pole through the roof,

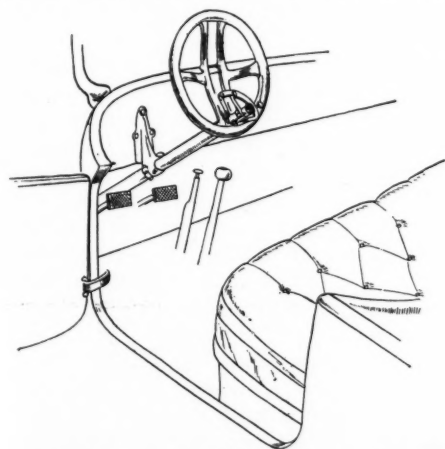
when it is taken into consideration that there has been, in almost every case, a door immediately under the driver's left arm.

Of course, the door at the left of the driver has been there for several years; the length of time does not matter. There is such a thing as being useful as well as ornamental, but of the former quality this door has had no claim worthy of mention. True, it would open, and perhaps it has assisted the driver to get his foot into the front seat, preparatory to sliding down under the wheel, like they put babies in high-chairs at the table, but outside of that its usefulness, so far as ingress and egress were concerned has been a negative quantity. Many have seen the driver struggling through a space twice too small to avoid disturbing a passenger when getting in the car.

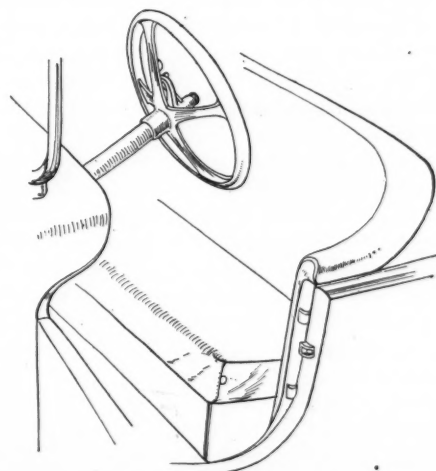
Steering Wheels and Pedals

Now that engines have been brought to a state approximating perfection, body lines made more pleasing to the eye, and a thousand and one other improvements made, time has been given to thought of the driver's comfort. The doors at the left have been widened, until, when opened, they expose nearly all of the horizontal portion of the front seat, affording the driver easy access to his position. In a few cars the designers have gone this procedure one better and equipped the car with a collapsible or hinged steering wheel, while in nearly all cars adjustable pedals are found that may be extended or shortened to bring the driver's feet in a position to give him the most leverage and the greatest comfort.

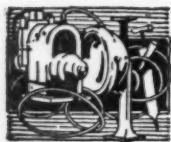
With the doors widened so that the driver may enter the car from the door nearest the wheel, he no longer needs to think of something for which he is ashamed in order to feel small enough to get through the needle's eye space such as the early body designers left for him.



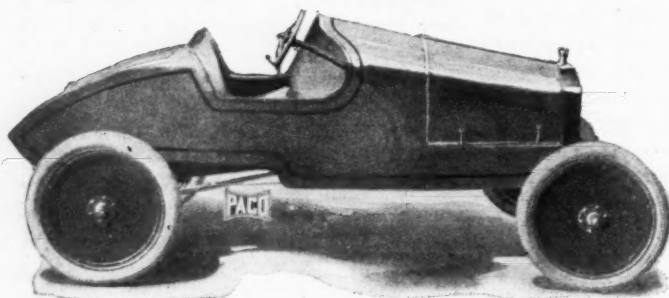
This shows how, in addition to the wide door, the steering wheel pushes up to give more room



Here is the usual practice of making door overlap seat in many of the 1916 cars



The Accessory Corner



Speedster body for Ford car, made by the Peoria Accessories Co., Peoria, Ill. This is a new style just brought out

Paco Bodies for Fords

THE Peoria Accessory Co., Peoria, Ill., has added to its line of special racing bodies for Fords, put out under the trade name Paco, a new model known as the 22, which sells for \$20 less than the model 21, described some months ago, or \$125. This new body is assembled complete as shown in the illustration at the top of this page. It will be noted that the hood is sloping and the cowl is in alignment. The dash is made of oak and a good quality of upholstery is offered.

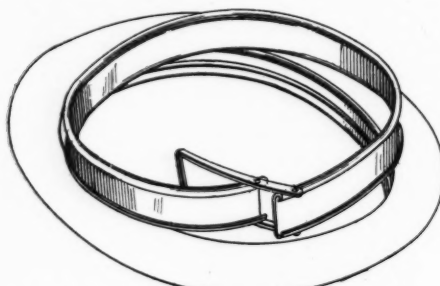
The rear end design is styled DuChesneau and has an extremely large carrying space with brackets for attaching the regular Ford gas tank. There is a large door in the rear end of the body, a hand brake lever is installed and the body comes equipped with cast-iron wedges for dropping the steering post, a new set of bent foot pedals together with floor boards and instructions as to how the body should be attached to the regular Ford chassis.

The length of the body from the radiator to the rear end is 128 inches while the width at seats is 37 inches. The seats are 20 inches high and 17 inches deep, and the length of the hood and cowl is 54 inches. Ample leg room is afforded in the 43-inch space between the back of the seat and the foot pedals.

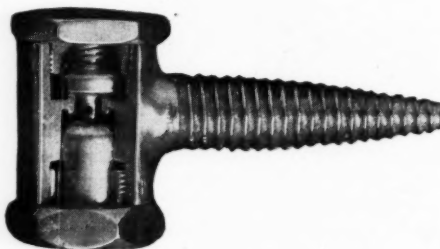
Johns-Manville Shock Absorber

An illustration at the top of page 56, in the January 20 issue of Motor Age, was captioned "J-M with twin helical spring." While the illustration was of the Johns-Manville shock absorber, another shock absorber, made by the J. M. Shock Absorber Co., New York, was illustrated on the same page and the caption on the J-M illustration should have been on the J. M. Raymond Operating Device for Split Rims

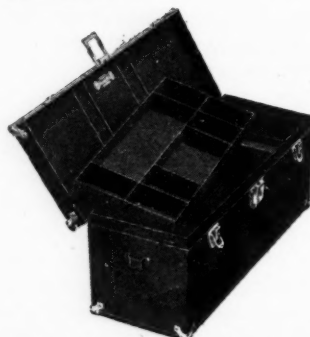
A device that relates generally to split rims and more particularly to the means in connection with their operation, and forming a permanent part thereof, for reducing the split rim when it is desired to release the tire therefrom, has been patented by D. J. Raymond, Crandon, Wis. It will be noted in the illustration on this page that the device always remains a part of the rim and when in a closed posi-



New type of rim contractor known as the Raymond



Top shows the Hansen service chuck, while at the left is hose connection with gauge attached



Kennedy kit made of prepared steel

tion acts as a brace for supporting the free ends of the rim on opposite sides of its gap in operative position.

This U-shaped lever is combined with a split rim, the extensions of the lever are spaced a distance slightly greater than the width of the rim and are pivotally connected at spaced points to the free ends of the rim on opposite sides of its gap, thus giving considerable leverage to make the contraction of the rim comparatively easy. Plans are under way for marketing these rims in large quantities.

Auto-Rad

In the January 20 issue of Motor Age, an illustration of the Auto-Rad exhaust heater, made by the Brevando Mfg. Co., Rochester, N. Y., was captioned as the Perfection exhaust heater. This came about from the fact that the Perfection Spring Co., Cleveland, O., makes a heater for Ford cars that attaches to the front of the back seat, just below the cushion, and the illustrations were confused. The Auto-Rad is a radiator, enameled steel-covered, and may be turned on or off at the will of the occupants of the car. It sells for \$6. This heater is made especially for Ford cars.

Warner Seat Covers

Through a typographical error, this sentence was published in Motor Age, January 20 issue, in describing Warner seat covers, made by the Warner Auto Top Co., Cincinnati, O.: "The company is guaranteeing price protection to September, 1916, to all dealers who are not placing their contracts for the year's requirements." Obviously, the "t" in the word "not" should have been a "w."

Hansen Air Chucks

The Hansen Mfg. Co., Cleveland, O., is marketing a line of air chucks and hose connections for both garage and owner's use, that is replete with novel features. Perhaps the most interesting to the garageman is the service chuck for use where tires are being pumped constantly, and where the desirability of eliminating leaks, thus economizing in power and obviating the frequent replacing of rubber washers and gaskets in the chuck, are not unimportant.

This service chuck, the constructional details of which are shown in the cutaway illustration on this page, is provided with a tight, mushroom-type of valve, which closes automatically immediately after the chuck is removed from the tire valve stem. By pressing the chuck against the valve stem, the valve opens automatically, permitting a free flow of air from the tank into the tire. There are no gaskets or washers in this chuck and it sells for \$3, complete, finished in nickel.

For smaller garages and for use on portable pumps the Hansen hose connection is so designed that it grips the tire valve stem tightly and is said not to blow off or leak. This sells for 80 cents, or when equipped with the air gauge as shown in the illustration, lists at \$2.

Cosmo Time Stamp

A time stamp is being made by the A. D. Joslin Mfg. Co., 229 West Erie street, Chicago, under the name of Cosmo. This stamp registers the day, hour and minute, and is made in four different models. The model A has a 12-hour dial and is stem wind and stem-set. The model AA is the same except that it is key wind. Model B has a 24-hour dial and the model BB a 24-hour dial, the former being stem wind and the latter key wind. The price with plain dial is \$7.

Kennedy Kits

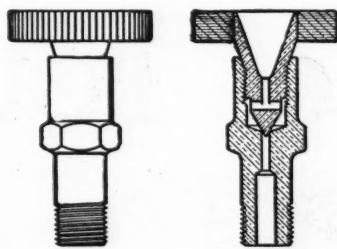
The Kennedy Mfg. Co., 14 East Jackson boulevard, Chicago, makes a specialty of tool kits of all sizes, a feature of which is that they are made of prepared steel, but are no heavier than other grips and tool kits, their range in weight being from 5 to 11 pounds. These kits are finished in three coated baked enamel to represent leather, either brown or black. The finish is said not to scratch, rub or chip off easily. In appearance these kits look like leather grips and they are finished with either Yale or Corbin locks. They come at various prices, the one illustrated selling for \$4, \$4.25 and \$4.50 according to dimensions. Several other styles are made.

Ideal Primer and Cup

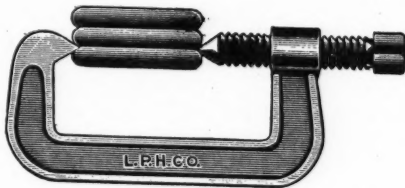
On this page is shown two specialties made by the Ideal Brass Works, Indianapolis, Ind., one a compression valve priming cup and the other a dash-board primer. The priming cup is said to be a radical departure from the old style of priming cups, being designed on the needle valve principle. This valve is guaranteed not to leak under the highest compression and another feature is that it may be operated with the thumb and finger without the use of tools of any kind and without burning the fingers. A fibre disk is so attached that it is said not to work loose.



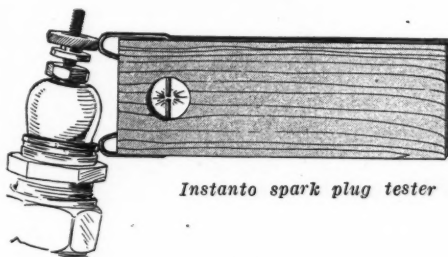
Cosmo time stamp



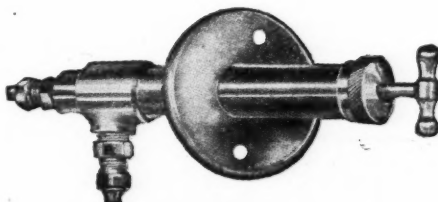
Ideal needle-valve priming cup, exterior and section-through



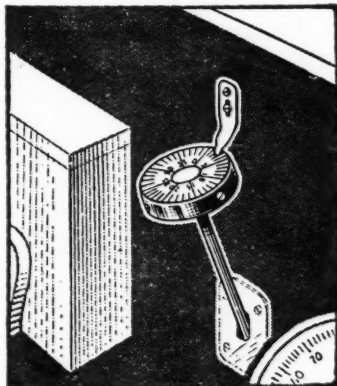
Avery spreader for spring lubricating



Instanto spark plug tester



Ideal dashboard primer, Model E



Schoener carburetor adjuster



Section of Stanley spring, which has cup-like places in the end of each leaf, which is filled with felt and retains the oil

These cups list at 50 cents each in nickel finish and 40 cents in brass. A type also is furnished in suitable angles for eight or twelve-cylinder motors.

With reference to the dash-board primer, mentioned above, this is designed to make it more convenient for the driver to start the engine in cold weather. It has a positive feed, being connected to the feed line, and is said to inject the proper amount of fuel manifold just before cranking. Price, \$3.

Avery Spring Lubricators

The Avery spring lubricators, made by the Avery P. L. Co., Milwaukee, Wis., are made of thin strips of graphite compound to be inserted between each spring leaf. A steel spreader, such as is shown on this page, is furnished for separating the leaves of the springs in order to insert the lubricators, making it unnecessary to take the springs apart. The price is \$1 per box of sixty, and the steel spreader is 50 cents extra.

Instanto Spark Plug Tester

W. Jackson & Co., 320 New York Life Building, Chicago, is marketing the Instanto spark plug tester, an illustration of which is shown on this page. The device consists of a small piece of wood with two wire contact points put in at one end, these contact points running through the wood and entering a hole bored through the wood, the ends of the wires all but meeting within this hole. The contact points are sufficiently spaced to permit bridging the insulation of the spark plug, and when the motor is running, if the plug is working, a spark will be shown jumping across the gap within the hole carrying the two contact terminals.

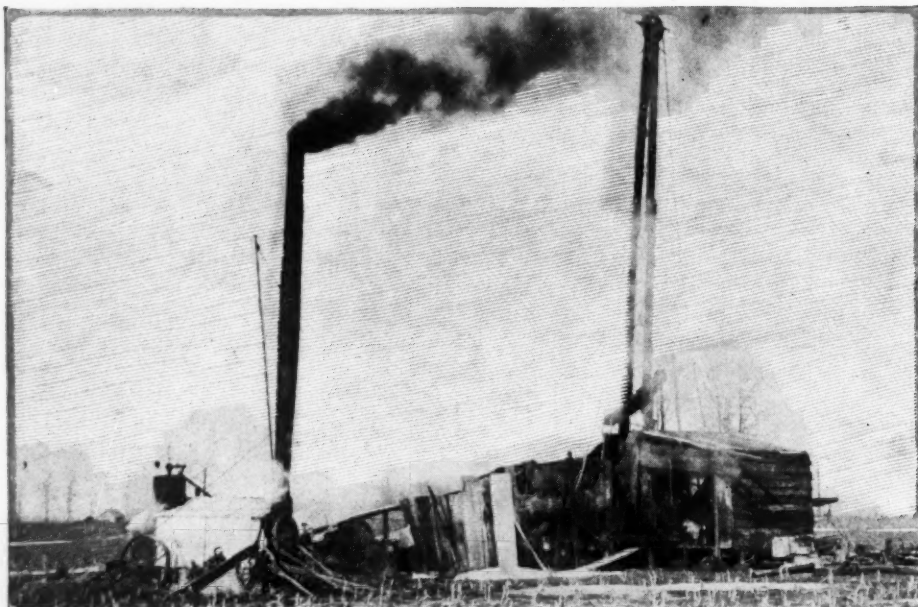
Schoener Carburetor Adjuster

A carburetor adjuster, made for Ford cars, is being manufactured by the Schoener Mfg. Co., St. Cloud, Minn., this being shown in an illustration on this page. The device consists of a dial connected by shaft to the needle valve of the carburetor, the face of this dial being acted upon by a pointer which at the same time, by reason of its being a spring, fits into the notches on the dial and holds the adjustments securely against being jarred out of place. Spaces on the dial are numbered from which it is possible to get the same setting each time, either for starting or running, and a wide range of adjustment is offered to suit the weather conditions. The price of the device is 50 cents.

Stanley Springs

The Kalamazoo Spring and Axle Co., Kalamazoo, Mich., makes a spring that is said to be kept in a thoroughly-lubricated condition at all times. These springs are made with an oiling recess in which is placed a felt pad to retain the oil, and leading from this felt pad is a groove or rim through which oil can be supplied as often as needed.

From the Four Winds



WILL THIS MAKE GASOLINE DROP?—Here is the apparatus with which an enthusiastic company is drilling for oil at Woodburn, Ind. The stockholders are all hopeful of striking a rich deposit of oil and are so enthusiastic over the outlook that they have leased 3,000 acres in the vicinity of this spot. Whenever the price of gasoline gets up to its present heights there is a considerable amount of "wild catting" like this done in the oil states. In various parts of Indiana and central western states other wells like this one are being drilled and shot in the hope of hitting the stuff that motorists pay out good money for.

STRANGE Things Happen Nowadays—

What looks like a paradox is that in spite of the fact that motor cars have proven a serious competitor of railroads from a touring standpoint, at least one of the latter has complied and issued a road map of New Jersey for free distribution. Announcement of this fact has been made in Pennsylvania by the Philadelphia & Reading Railway, and the only way, if any, that the railroad can gain through this publicity is that the motorist, in order to cross the Delaware river and travel to seashore points over the designated routes, is encouraged to use the ferry boats controlled by the company.

Minnesota Farmers Ardent Motorists—In a summary of the Minnesota registration of motor cars it was discovered that up to November 1, 1915, the farmers owned 46,562 cars, or more than 54 per cent of the total in the state of about 93,111 machines. The combined population of the Twin Cities and Duluth is 722,871. These cities have 20,541 cars, or one car for each thirty-five persons. The estimated population outside these cities is 640,177, in which district the registration of cars on November 1 was 64,852. The estimated ownership of cars by actual residents of all other towns on the basis of 35 persons to the car is 18,290, leaving the remainder to the country, or 46,562.

Milwaukeeans Tackle Parking Plan—The Milwaukee Engineers' Society has taken cognizance of the parking problem in Milwaukee, Wis., and appointed a committee to make plans for setting aside certain streets and providing other space for the parking of motor cars in the downtown district during business hours. The problem has been handled in a rather haphazard manner up to this time and the need for a systematic plan is evident. There are 13,570 cars owned in Milwaukee and it is expected that this number will be increased

The Show Circuit



Racine, Wis., Show—The fourth annual show to be given by the Racine Automobile Show Association, Racine, Wis., has been set for February 17 to 19 inclusive. The show will again be held in the Lakeside Auditorium. Joseph Seidell has been appointed manager. Although the Racine show is principally an exhibition by retail dealers, the Mitchell and Case factories will have large exhibits as manufacturers.

Tractor Exhibit at Kansas City—Arrangements have been completed by the Kansas City Tractor Club, Kansas City, Mo., for a tractor show to be held there the week of February 7, coincident to the annual motor show. The tractor display will be held in a big tent just east of the new Union Station and within a few blocks of the motor exhibition. However, it will be entirely separate from the motor show. Guy E. Hall, secretary of the tractor club, expects about 100 machines will be on exhibit.

Des Moines, Ia., Show—All decorations for the Des Moines, Ia., show, February 14 to 19, will be in black and white stripes. The canopy covering the entire show will be made up of 4,300 yards of black and white bunting in strips 2 feet wide. The same scheme will be worked out for every detail of the show and a total of over 9,000 yards of bunting will be used. Two strip pictures, each 180 feet long and 9 feet high, will grace the sides of the main arena. Over 500 seats will be provided for spectators. Preparations are now in progress.

to 16,000 before June 1, making it imperative that a parking plan be put into operation this year.

St. Louisians Under 18 Can't Drive—The board of aldermen has passed an ordinance prohibiting persons under 18 years of age to drive motor vehicles on the streets of St. Louis, Mo. A fine of from \$5 to \$25 was provided for violation of the ordinance. It was passed by unanimous vote.

Iowa's License Tags Lost—Two carloads of number plates for the state of Iowa have been lost in transit between St. Paul and Des Moines and as a result the state registration department is 25,000 number plates behind its orders for 1916. The number of registrations for the year already has passed 65,000.

Protest Garages in Barns—Complaint has been filed with the Aurora, Ill., council that old and decrepit barns and other structures are being converted into garages and oil supply stations, and that each is a fire trap and unsightly. The council is urged to forbid permits to such plants and force the owners to erect fire-proof buildings and of an ornamental character such as will be a credit to the neighborhood and the city. An investigation has been ordered.

Sells Jobs at Ford Plant—Theophile Kwatkowski, Detroit, Mich., fooled quite a number of his countrymen by telling them he could get them five-dollar-a-day jobs at the Ford Motor Co. Of course, he had them pay for this service. Complaint having been made after some of the promised jobs did not mature, the man was arrested. He has been given a 90-day vacation in the Detroit house of correction and must also pay a fine of \$110.

Wisconsin License Tags Held Up—During the first fifteen days of 1916, 22,250 applications from private owners for 1916 licenses were received by the secretary of state of Wisconsin. During the same period of 1915, the number of applications was only 9,750. Only 6,000 sets of plates have been issued thus far, because of the inability of the contractor for plates to make prompt delivery as specified. Permission has been given to operate under former licenses until new plates can be provided.

Illinois License Plates Please—The new license plates for Illinois, now making their appearance for 1916, are meeting with general approval, due to the reduction in size. They are one-half the size of those of former years. The colors used are a background of black with letters in aluminum, insuring distinctness and also promoting economy in the manufacture. The state will save a very large sum in the reduced cost, while car owners are approving the notable size reduction.

Jitney Men Win Suit—The jitney bus men of Springfield, Ill., won their long drawn out suit against the city in which they protested the ordinance regulating the operation of the vehicles. Judge Creighton handed down a decision last week declaring the leading sections of the ordinance unlawful and the city was restrained from further enforcing them. One feature knocked out required a bond of \$5,000 to indemnify the city against accident. Another section ruled out, required the automatic cancellation of a license should any of the provisions of the law be violated. The third criticized required all chauffeurs to prove their good moral character. Sixteen jitney busmen who challenged the ordinance have resumed

the operation of their vehicles. The city likely will appeal to a higher court.

Ford Employees Save Money—John C. Lee, who directs the work of the welfare department of the Ford Motor Co., Detroit, Mich., in addressing the St. Paul Men's Club, Flint, Mich., told what had been accomplished at the Ford plant in the way of making better men of the thousands of employees and pointed out as one result that on January 1 Ford workers had \$22,000,000 invested in homes and had \$6,000,000 savings in banks. In both instances there was an increase of several million dollars due, to a great extent, to the efforts of the social welfare department to educate the workers, teach them the habit of saving money, showing them the evils of spending money in drinking and bad company.

Good Roads Activities

Missourians Want Highway—An effort to put St. Louis and a number of other Missouri cities on the route of the proposed Canada-to-Gulf-of-Mexico highway will be made at a massmeeting of Missouri good road boosters which will be held at Moberly, Mo., in the near future. Tentative routes from Des Moines, Ia., to St. Louis are now under consideration.

Turn Down Road Bonds Issue—Saline County, Mo., failed to adopt the proposal to authorize bonds totaling \$1,310,000 for the construction of 192 miles of macadam roads throughout the county. A two-thirds majority vote was necessary at the special election called. Road boosters expect now to go ahead on road construction there through bonds issued by special road districts.

Roadmakers Organize—Producers and dealers in crushed stone met in Milwaukee, Wis., and organized the Wisconsin Crushed Stone Association, the principal aim of which will be to promote the good roads movement and protect persons engaged in the business. The association has filed articles of incorporation. Headquarters are in Milwaukee. J. J. Sloan is secretary of the new organization.

County Makes Good Road Showing—More permanent good road work was done in Greene County, Mo., the gateway of the Ozarks, during 1915 than in any other year in the county's history, according to the report of the county road commissioner. Forty-one miles of rock were laid during the year, 104 culverts were built and \$41,251 was spent by the county on the repair of roads and bridges.

Films to Boost Bond Vote—Motion pictures taken on good and bad roads in St. Louis county, Mo., will be thrown on the screen at all future meetings held in the interest of the \$3,000,000 good roads bond issue to be voted on in the county February 15. One reel will show what has been done in places and what can be done throughout the county to make the ride of the motorist smoother, while another reel will show what has not been done in sections of the county and how the traveler is put to discomfort by the neglecting of roads.

Planning Jefferson Highway Route—Harry Hayley, pathfinder for the Business Men's Club, Nashville, Tenn., which is promoting the Jefferson highway, has presented two tentative routes through Mississippi to the highway committee. One of these is from Memphis to Senatobia, Miss., Bateville, Greenville, Grenada, Lexington to Jackson, and from that place to Beauvoir, the home of Jefferson Davis. The other is from Memphis to Clarkdale, Miss., Greenwood, Yazoo City, to Jackson. Either of these routes also will serve the purpose of linking Memphis with New Orleans. The

Jefferson Highway Association will be organized at a meeting in Memphis, February 17 and 18.

New Highway Planned in Iowa—The Daniel Boone Trail, a new highway from Des Moines, Ia., to St. Paul, Minn., via Boone, Fort Dodge, Algona, Blue Earth and Mankato, has been organized at Fort Dodge by J. E. McHose, Boone, who originated the idea. Mr. McHose is president, John Homan, Mankato, is vice-president for Minnesota; J. F. Ford, Fort Dodge, is vice-president for Iowa.

Bridge Little Missouri—The bridge over the Little Missouri river in Billings county, N. D., for the Red Trail is to be completed this month. Travel may be resumed when the season opens. A campaign has begun for \$250,000 to make a bridge across the Missouri river to Mandan, N. D., as part of the same National Parks highway. This is the last unbridged crossing of the highway between Boston and Seattle.

Would Inforce Road Sign Law—The Wisconsin Guide Sign Association has been organized by dealers, motorists and good roads workers to obtain enforcement of a strict Wisconsin law requiring townships to erect substantial guide signs at the intersection of all main traveled thoroughfares at public expense. The law has not been observed in most counties of the state, probably for the reason that there is no penalty named in

Coming Motor Events

SHOWS

February 7-12—Kansas City, Mo., show.
February 9-12—Peoria, Ill., show.
February 12-19—Hartford, Conn., show.
February 14-19—Des Moines, Ia., show.
February 16-19—Bloomington, Ill., show.
February 17-19—Racine, Wis., show.
February 19-26—Harrisburg, Pa., show.
February 20-27—Grand Rapids, Mich., show.
February 21-26—Louisville, Ky., show.
February 21-26—Omaha, Neb., show.
February 21-26—Syracuse, N. Y., show.
February 22—Los Angeles, Cal., speedway race.
February 28-March 4—Indianapolis, Ind., show.
February 29-March 4—Sioux City, Ia., show.
February 29-March 4—Fort Dodge, Ia., show.
March 4-11—Boston show.
March 8-11—Davenport-Rock Island-Moline show.
March 8-11—Mason City, Ia., show.
March 9-11—Kenosha, Wis., show.
March 20-25—Twin Falls, Idaho, show.
March 21-25—Deadwood, S. D., show.
March 22-25—Saginaw, Mich., show.
April 10-15—Seattle, Wash., show.

CONTESTS

May 6—Sioux City, Ia., speedway race.
May 13—New York, Sheepshead Bay speedway race.
May 20—Chicago speedway amateurs' race.
May 30—Indianapolis speedway race.
June 10—Chicago speedway race.
June 28—Des Moines, Ia., speedway race.
July 4—Minneapolis speedway race.
July 4—Sioux City speedway race.
July 4—Track meet, Couer d'Alene, Ida.
July 15—Omaha, Neb., speedway race.
August 5—Tacoma speedway race.
August 18-19—Elgin road race.
September 4—Indianapolis speedway race.
September 9—Des Moines, Ia., speedway race.
September 15—Indianapolis speedway race.
September 29—Track meet, Trenton, N. J.
September 30—New York, Sheepshead Bay speedway race.
October 7—Omaha speedway race.
October 14—Chicago speedway race.
October 19—Indianapolis speedway race.

* Sanctioned by A. A. A.

the statute, although the law is mandatory. The county of Milwaukee already has arranged to spend about \$2,000 in posting the roads, particularly those of concrete. The new association has established headquarters at room 152, Wisconsin Hotel, Milwaukee.

Show Profits for Roads—The motor car dealers in many Illinois cities, are approving a new system in the disposition of the profits from the annual shows. The associations in Bloomington and Peoria, has decided to utilize the profits for road improvements instead of dividing them pro rata among the exhibitors. It is estimated that \$500 will be left for this purpose from the Peoria show, while the Bloomington show may equal this sum.

With the Motor Clubs

Clubs Boost Membership—During December last the Automobile Club of Delaware county, Pa., increased its membership to 1,453 as the result of a campaign. The club is preparing to issue its annual route book, covering New Jersey, Delaware, Pennsylvania, Maryland and the District of Columbia, and containing complete road data of this vicinity.

Physicians' Club Elects—The Physicians' Motor Club, Philadelphia, Pa., held its annual meeting recently at the Hotel Walton and the following officers were elected: President, Dr. S. Leon Gans; vice-president, Dr. D. J. Robecht; secretary, Dr. Howard Sutton; treasurer, Dr. Louis H. Adler, Jr. Directors elected were: Drs. T. J. Ellinger and E. D. Saylor.

Rockford Club Elects—The Rockford Motor Club, Rockford, Ill., elected the following officers at the annual meeting this week: President, J. E. Armstrong; vice-president, Julius Hanson; secretary, E. A. Anderson; treasurer, Duncan Bennett. The sale of building bonds to cover the cost of the new club house is proceeding satisfactorily and the structure will be ready for occupancy by early summer.

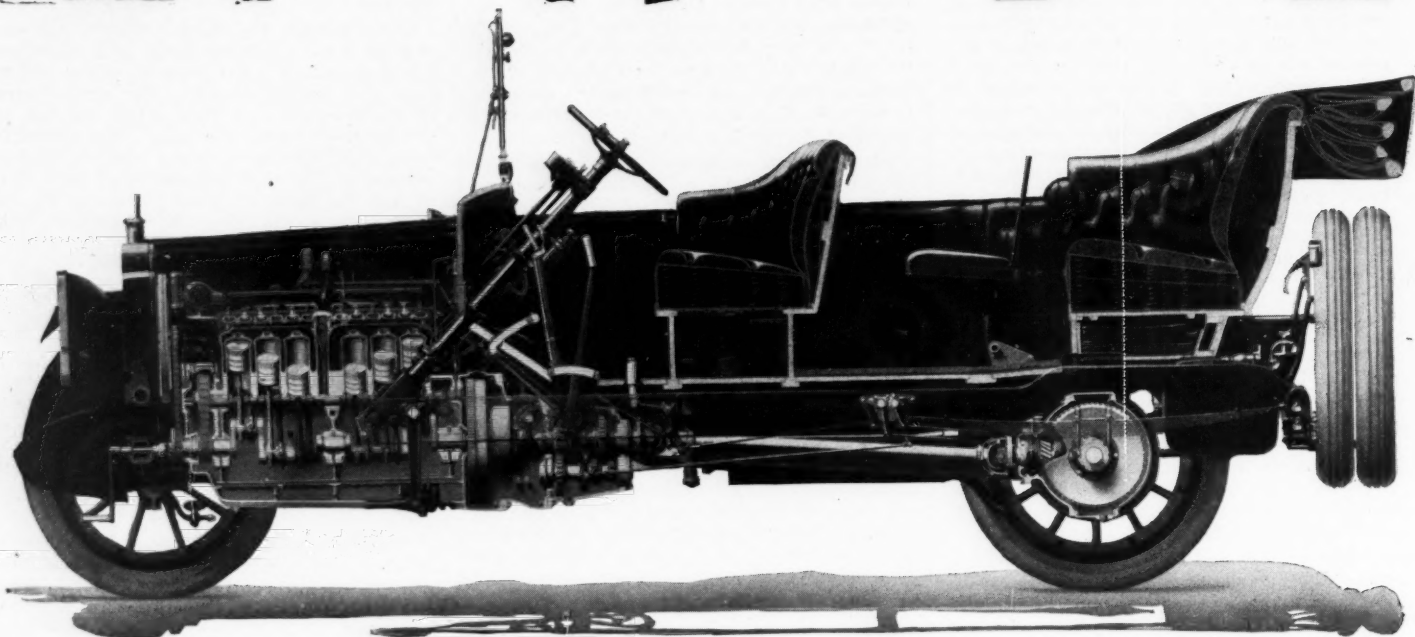
Association Plans Club Rooms—The Milwaukee Automobile Dealers, Inc., Milwaukee, Wis., are about to establish a permanent home in the downtown district. The association has maintained offices for several years, but is arranging to lease an entire building or one floor of a large building and provide clubrooms as well as business offices. The M. A. D. has taken a leading part in good roads work and last year operated a touring bureau. Frank J. Edwards is president of the association.

Club to Be Continued—The Green Bay Automobile Club, Green Bay, Wis., which tried the experiment last year of operating a clubhouse on the shores of Green Bay, will continue the plan in 1916. The club leased the former Nicollet hotel at Red Banks, on the edge of the city, engaged a manager, and made it one of the most popular resorts on the Great Lakes. W. H. Fizette, Milwaukee, has been re-engaged as manager.

Denver Club Aids Motorists—Members of the Denver Motor Club, Denver, Colo., are being saved a great deal of time and inconvenience in connection with the state registration for 1916 by an arrangement for getting their licenses through the club. Application blanks were secured from the secretary of state and mailed to all the Denver members. The members then sent blanks and fees directly to the club, which arranged with its notary to file them at the state house, get the registration certificates and license tags and deliver same. This plan saves the inconvenience of making out certified checks to the state, standing in line to file applications, etc.



Among the Makers and Dealers



HALF OF A PACKARD TWIN SIX—Here is an ingenious picture originated by the Packard Motor Car Co., Detroit, Mich., to throw light on the inner workings of the Twin Six chassis. It discloses the interior of the gearset crankcase and one block of cylinders. At the front end, just inside the crankcase, can be seen the silent chain which drives the camshaft. The sectional view of one of the cylinder blocks shows the small size of pistons and the adjustment of connecting rods. Careful scrutiny will reveal part of the lubricating system, which is a force-feed arrangement. At the rear

end of the crankshaft may be seen the flywheel teeth, which engage with the self-starter gear. The self-starter heel button can be seen protruding through the floor boards. The clutch and gearset are housed in an extension of the crankcase, making a compact unit powerplant. The drive shaft is of good length, which lessens the wear on the universals. Part of the worm-bevel gear has been cut away, in the picture, to show the pinion which engages with it in the final drive. The Twin Six is driven through new type springs. This is shown in the illustration.

STANDARD Welding Adds to Plant—The Standard Welding Co., Cleveland, O., is building an addition to its plant that will cost about \$15,000.

New St. Louis U. S. Tire Manager—O. S. Johnson has been appointed manager of the St. Louis, Mo., branch of the United States Tire Co., vice H. H. Hubbard, who has been transferred to the home office of the company.

Excelsior Seats for Motor Cars—Enlargement of its business scope has been decided upon by the directors of the Excelsior Seat Co., Columbus, O. For many years it has been engaged in the manufacture of seats and bodies for horse-drawn vehicles. Now it will add motor car bodies to the line. The special machinery is being bought and is to be installed at once.

Joins Chevrolet as Assistant Secretary—Edwin O. Wood, who was president of the Loyal Guard, and who is a member of the Democratic national committee for Michigan, has become assistant secretary of the Chevrolet Motor Co. of Delaware, also director of the company. It is said he will be very closely connected with the president, W. C. Durant, in a personal and confidential capacity.

Chandler Motor Is Adding—The Chandler Motor Car Co., Cleveland, O., has begun the construction of another large building adjoining the present factory buildings, in order to enlarge the various departments sufficiently to meet the needs of the increased output for 1916. It will have 25,000 square feet of space and will be one story in height for the present. However, the foundation and walls will be heavy and it probably will be increased to five floors later on, as the space is needed. This company

will produce 20,000 cars this year, which means an increase of more than 100 per cent over the output in 1914.

Perfection Spring Will Increase—The Perfection Spring Co., Cleveland, O., has purchased two parcels of land adjoining its present buildings on which an addition will be built.

Mason Tire Increases Capital—At a meeting of the board of directors of the Mason Tire and Rubber Co., Kent, O., last week, a resolution was adopted to increase the capital stock to \$1,000,000 and a meeting of the stockholders will be called within a short time to approve this step. According to a statement made after the meeting contracts have already been awarded to build a plant, to be completed before May 15.

Hyatt Factory Organ—Employees of the Hyatt Roller Bearing Co., Detroit, Mich., Newark, N. J., and Chicago, are editing and publishing a monthly factory magazine. Its caption is "Hyatt Quiet Type," and it is devoted to the interests of Hyatt employees everywhere. Bright, newsy stories of the activities of the employees at the main factories and at the headquarters of the various departments in different sections of the country appear in each issue.

Pay By Cash Instead of Check—The 2,100 men working at the Muskegon, Mich., plant of the Continental Motor Mfg. Co., received their semi-monthly salaries in cash last week, instead of in checks, as has been the custom for years. Between \$58,000 and \$63,000 was paid out. The change was brought about because the men sometimes had difficulty in cashing their checks, unless it be at the banks; that they often spent money in order to cash their checks, which expenditure was not by any means neces-

sary; also because the cash payment system has been in force at the Detroit plant and has given excellent results there.

New U. S. Branch Manager—Howard E. Crocker has been appointed manager of the Providence, R. I., branch of the United States Tire Co. John Toomey, former manager, has been promoted to the management of the Boston branch of the company.

Little Goes to Gotham—E. J. Little, who has been manager of the Fort Wayne, Ind., sales district of S. F. Bowser & Co. for the last 5 years, has been promoted to the managership of the New York office. Mr. Little succeeds H. C. Carpenter, who has taken charge of the Atlanta, Ga., office.

Saxon Has Two Shifts—A few days ago the Saxon Motor Car Co., Detroit, Mich., started to operate its plant with two 8-hour shifts and this working system is expected to continue throughout the spring and summer. The average production during the last few days has been between 110 and 125 cars per day. The January output will be 3,000 cars and thereafter 5,000 cars per month will be made.

Makes Short-Turn Trailer—Nickle Bros., Flint, Mich., wagon makers, have brought out a new trailer which, it is claimed, has many novel features. Each of the four wheels is placed on a circle similar to the fifth wheel of an ordinary wagon. The left hind wheel and the right front wheel are connected through long rods. Also the right rear wheel with the left front wheel, so that when the front wheels are turned in one direction the rear truck turns the opposite way. The wheel travels on the circumference of a circle, the diameter of which may be as small as 20 feet. For the present the trailer is made with only a light wagon type

of body to carry a load of 1,500 pounds. Heavier style bodies will be made. The members of the firm are William J. and Samuel Nickle, veteran wagon builders.

Clayden Will Address Detroit S. A. E.—At a meeting to be held February 16, at the Ponchartrain Hotel, Detroit, Mich., by the Detroit Section of the S. A. E., the principal speaker will be A. Ludlow Clayden, of the Society of Automobile Engineers and member of the editorial staff of the Class Journal Co. His subject will be, "Engineering Lessons of the 1916 Shows."

Will Begin Production in April—The plant of the All-Steel Motor Car Co., which is being built at Macon, Mo., will be ready for operation early in April, it was announced following the annual meeting of the officers and stockholders of the company. The company plans to put out an all-steel touring car, including starter and electric lights, for \$425. If present plans are realized, the All-Steel car will be on the market early in August.

Wayne Salesmen Get Prizes—At the annual convention of the salesmen of the Wayne Oil Tank & Pump Co., held at Fort Wayne, Ind., the prize winners and prizes were awarded as follows: First, F. A. Smith, Detroit, Mich., \$75-Howard watch; second, D. W. McConnell, Portland, Me., diamond-mounted gold fob; third, R. H. Yale, Lima, O., walrus traveling bag with toilet set; fourth, R. A. Jacobs, Wichita, Kan., Walde-mar gold chain and knife; fifth, S. C. Hill, Indianapolis, Ind., \$25 in gold.

Timkin May Build Malleable Plant—The Timken-Detroit Axle Co., Detroit, Mich., will very likely begin shortly the erection of a malleable iron plant, the location of which has not yet been decided upon, but will be where shipping facilities are best suited. The new plant will employ 500 men, or more, and probably will take care of half of the malleable iron supply needed by the company. The decision to put up the plant

is due to the fact of the enormous increase in the business of the company and the difficulty in securing needed supplies of raw material.

Brosseau Moves Up—A. J. Brosseau, for the last 12 years general manager of the Gale Mfg. Co., Albion, Mich., and who was a stockholder of the Federal Motor Truck Co., becomes vice-president and a director in the Gale concern February 1.

Continental Truck at New York—Owing to its increasing export business and to better care for the interests of its foreign distributors and agents, the Continental Motor Truck Co., Chicago, has opened an export office at 17 Battery Place, New York.

Two Carloads of Bumpers—What is believed to be the largest individual shipment of motor car bumpers on record was made January 15 by the Gemco Mfg. Co., Milwaukee, Wis., to the Motor Car Equipment Co., New York. The Gemco company makes an extensive line of bumpers for practically every make of car. Its capacity for 1916 is more than five times that of 3 years ago.

Bryant Dies at New York—Richard S. Bryant, factory manager for the Standard Welding Co., died of cancer at the Post-Graduate Hospital, New York, January 24. Bryant was widely known as an authority on rims, and had invented a number of special types during his career. He was the first to design a quick-detachable rim—a type still used to a large extent. He organized the Bryant Rim Co., Columbus, O., which later was bought out by the Diamond Rubber Co., Akron.

Bowen Resigns from Locomobile—Announcement is made of the resignation of Frank H. Bowen, manager of the sales department of the Locomobile company's New York branch. Mr. Bowen left the Company February 1 and is interested in the formation of a company to manufacture a car designed along totally different lines from any now

on the market. He has been engaged in the motor car business continuously for the last 15 years and enjoys a large acquaintance throughout the trade.

Eley with Cleveland Ford—J. S. M. Eley, with the Herschide Motor Car Co., Cleveland, O., has resigned to join the Cleveland Ford Co.

Giroux Goes to Chicago Abbott—George R. Giroux, formerly with the Mercer agency in Chicago, has resigned and joined the Consolidated Car Co.'s Chicago branch.

Ryan Goes to Booth Felt—F. S. Ryan, formerly with the Commercial Vehicle Detroit office, has resigned to represent the Booth Felt Co., Detroit, Mich., with plants at Brooklyn, Detroit and Chicago. He is succeeded by S. A. Ryan.

Reo Buys Land—A large tract of land has been purchased by the Reo Motor Car Co., Lansing, Mich., involving, it is said, more than \$20,000. This property is located opposite the new Reo club house and extends for a distance of about 400 feet to Grand River. It will probably be used for extending the plant when the necessity arises.

Delivery Dates of Torbenson Axles—In the advertisement of the Torbenson Gear and Axle Co. in the issue of Motor Age for January 20 it was announced that the new 2-ton axle would be ready for delivery February 1 and that the new 1-ton front axle would be ready for delivery April 1. This was not correct, as the new 1-ton axle will be ready February 1 and the new 2-ton April 1.

Milwaukee Ford Plant Opens—Although the new Milwaukee plant of the Ford Motor Co. opened for business on Thursday, January 27, the formal and official opening has been scheduled for March 1, when Henry Ford will come to Milwaukee. On this occasion all Ford dealers in Wisconsin will be invited to a convention. It is stated that the entire output will be for Wisconsin distribution only.

Akron, O.—Norka Rubber Co., to manufacture rubber articles; capital stock, \$20,000; incorporators, J. J. Dildine, W. C. Washburn, H. W. Heckman, C. E. Foutts, Wm. Dildine.

Akron, O.—American Rubber & Tire Co.; capital stock, \$500,000; incorporators, F. H. Snyder, F. H. Snyder, I. M. Taggart, G. V. Kratsch and L. P. Mauger.

Albany, N. Y.—Springfield Body Corp.; capital stock, \$2,500,000; incorporators, E. L. Orvis, I. D. Strauss and Thaddeus Faber.

Appleton, Wis.—Central Motor Car Co.; capital stock, \$10,000; incorporators, J. T. McCann, Ambrose Wilton and A. F. Nohr.

Baltimore, Md.—Baltimore Oil Engine Co., to manufacture internal combustion oil engines under the Wygodsky system; incorporators, A. W. Gieske, President.

Gallion, O.—Motor Driven Implement Co.; capital stock, \$50,000; incorporators, E. P. Rayle, Dr. E. D. Helfrich, B. E. Place, S. A. Wheatcraft and H. L. Bodley.

Chicago—Bear Rubber Tire Co.; capital stock, \$2,500; incorporators, A. L. Bear, J. N. Heldman and E. Graff.

Cleveland, O.—Coate-McCoy Motor Co., to deal in motor cars; capital stock, \$50,000; incorporators, M. D. Coate, J. W. McCoy, H. M. Coate, C. McCoy and Charles Ammermann.

Cleveland, O.—S. & S. Mfg. Sales Co., to manufacture, buy and sell motor car accessories; capital stock, \$5,000; incorporators, I. B. Stoner, R. D. Swan, F. J. Merrick, C. C. Lukey, W. H. Kramer, Marjorie Deming.

Columbus, O.—Vincent, Franz, Kleeman Motor Sales Co.; capital stock, \$5,000; incorporators, F. L. Vincent, H. G. Franz, I. Kleeman, C. P. Outhwaite, Ralph J. Reynolds.

Columbus, O.—Continental Rubber Co.; capital stock, \$500,000; incorporators, G. W. Doerzbach, J. J. Dauch, J. T. Sloan, S. Frohman, L. J. Weadock and Charles Sprague.

Dayton, O.—Dayton Automobile School Co.; incorporators, D. B. Williams, H. D. Geyer, H. B. Williams, R. M. Bierschen and A. H. Lane.

Detroit, Mich.—Welt Engineering Co., to make parts, general machine shop business; capital stock, \$400,000; incorporators, J. W. Anderson, J. H. Walker and E. H. Walker.

Detroit, Mich.—Detroit Engineering Products Co.; capital stock, \$60,000; incorporators, Earle Wieborn, R. K. Dykeman and C. G. Dyer.

Detroit, Mich.—L. Bregand Mfg. Co., to make motor car parts and accessories; capital stock, \$8,000; incorporators, L. J. Duquet, G. G. Bouthinon and S. A. Erwin.

Hudson-Eckenrood Motor Co., to deal in motor vehicles and supplies; capital stock, \$10,000; incorporators, P. J. Eckenrood, J. H. Gitch, William W. Gilson, O. M. Phillips, Leo F. Pierce.

Recent Incorporations

Jefferson City, Mo.—O. & L. Auto Supply Co.; capital stock, \$4,000; incorporators, W. C. Berry, F. M. Ostertag and N. E. Lugo.

Lafayette, Ind.—Lion Tire & Rubber Corp.; capital stock, \$150,000; incorporators, Ferdinand Dryfus, Thomas Foley, Wm. A. Klepper, P. F. Friel, R. K. Bedgood, H. J. Haarmeyer, G. B. Smith, T. J. Cullen, Edward Taylor, Thomas Crane.

Lexington, Ky.—Fayette Taxicab Co.; capital stock, \$3,000; incorporators, Morgan Smedley, W. P. Price, W. P. Kimball, D. C. Hunter.

Lima, O.—Ohio Bull Tractor Co.; capital stock, \$5,000; incorporators, Willard Wooding, E. H. Hawisher, May Byland, C. W. Cessna and Martha Hawisher.

Little Rock, Ark.—Green Motor Co.; capital stock, \$10,000; incorporators, A. B. Cox, C. E. Shomaker, J. W. Green.

Madison, Wis.—Brewer-Mosel Auto Co.; capital stock, \$15,000; incorporators, Frank Mosel, O. F. Brewer, F. W. Mosel and J. H. Mosel.

Middle Branch, O.—Middle Branch Auto Service & Sales Co.; capital stock, \$10,000; incorporators, C. C. Speelman, C. E. Cocklin, Henry Speelman, R. G. Rubright, Thomas J. Cocklin.

Milwaukee, Wis.—William O. Goodrich Co., oils, etc.; capital stock, \$250,000; incorporators, W. O. Goodrich, Leo Mann and W. M. Spooner.

Milwaukee, Wis.—Diamond Oil Co.; capital stock, \$25,000; general manager, Lawrence Debus.

New York—Northern Rubber Corp.; to deal in rubber goods; capital stock, \$100,000; incorporators, J. E. Doane, J. E. Taylor, K. Wideem.

New York—Newport Garage Co.; capital stock, \$30,000; incorporators, G. J. Wise, E. I. Kleinfeld, H. Rubenoff.

New York—Traffic Garage Co.; capital stock, \$30,000; incorporators, F. R. Gilmartin, L. H. Burfeind, S. Nlausner.

New York—Russell-Dewey Co.; capital stock, \$40,000; incorporator, C. A. Hillers.

New York—Lock Tire Mfg. Co.; capital stock, \$500,000; incorporators, G. E. Whipple, T. M. McGrath, H. J. Wellebil.

Paducah, Ky.—West Kentucky Automobile Co.; capital stock, \$10,000; incorporators R. Levy, Charles New and S. R. Dreyfus.

Painesville, O.—Hascall Motor Truck Co.; capital stock, \$100,000; incorporators, I. Amster, E. M. Denner, L. S. Lemmasson, J. C. Barkley and John P. Dempsey.

Racine, Wis.—Standard Garage Co.; capital stock, \$20,000; incorporators, A. G. Jones, J. Prostednik, Alfred Larson and Joseph Harlish.

Racine, Wis.—Standard Garage Co., to operate garage, sell cars, etc.; capital stock, \$20,000; incorporators, A. J. Jones, Joseph Havlish, Alfred Larson, Joseph Prostednik.

Rochester, N. Y.—Unitube Auto Radiator Corp.; auto radiators, other parts and accessories, etc.; capital stock, \$200,000; incorporators, G. S. Cook, H. F. Beardslee, E. M. Sparlin.

San Antonio, Tex.—Simmons Wheel Co.; capital stock, \$20,000; incorporators, O. G. Simmons, D. J. Woodward, J. M. West.

Springdale, Pa.—Springdale Garage Co.; capital stock, \$5,000; incorporator, John A. Stevenson.

St. Paul, Minn.—Packet Motor Car Mfg. Co.; capital stock, \$150,000; incorporators, H. H. Orme, G. M. Davis, W. F. Tobin.

Toledo, O.—Booth Bumper Co.; capital stock, \$10,000; incorporators, W. S. Booth, G. E. Smith and F. H. Greer.

Toledo, O.—Booth Bumper Co., to manufacture motor car bumpers; capital stock, \$10,000; incorporators, W. S. Booth, G. E. Smith, Frank H. Geer, W. L. Schumacher, C. V. Skinner.

Toledo, O.—Toledo Auto Starter Co., to deal in accessories; capital stock, \$10,000; incorporators, H. H. Jex, Edwin J. Himes, R. W. Jex, T. H. Porter, E. S. Cook.

Toledo, O.—E. V. Sala Sales Co., to deal in motor cars and supplies; capital stock, \$15,000; incorporators, W. N. Quinckel, F. M. Sala and Earl V. Sala.

Toledo, O.—Akron Repair and Tire Co., to deal in new and second hand motor car tires; capital stock, \$50,000; incorporators, P. J. Hooker, A. O. Ross, S. D. Brewster, R. E. Queen, R. J. Gates.

Warwick, O.—Warwick Rubber Mfg. Co., to reclaim rubber from manufactured rubber products, etc.; capital stock, \$20,000; incorporators, L. Y. Graft, A. H. Engleback, J. H. Adams, E. H. Gilmadist and F. B. Burch.

Wilmington, Del.—Reliance Tire & Rubber Co., to manufacture and deal in tires; capital stock, \$250,000.

Youngstown, O.—Universal Rubber Co., to deal in tires; capital stock, \$10,000; incorporators, R. P. Bremer, W. F. Fowler, R. Thixon, J. P. Boring, Ella M. Fowler.



The Motorists' Bookman



J. H. NEWMARK, former advertising manager of the Oakland Motor Car Co., Pontiac, Mich., and now with the Apperson Bros. Automobile Co., Kokomo, Ind., in a similar capacity, has written a book entitled *Automobile Business, a Guide*, which comes as the result of his varied experience in the sales and advertising fields. In his introduction Mr. Newmark points out that the book is for those who are already engaged in the motor car business, or who are thinking of entering this field of activity in any capacity, either as dealer, salesman, in garage work, or the business as a whole. Helpful inspiration and suggestion of better ways of doing business are the basis on which the writer attacks his problem.

The opening chapter has to do with opportunities and the price we have to pay for success. Later chapters deal with the choice of territory, the organization of the sales force, the choice of cars, showroom location, the care of window displays and many other subjects which are of vital importance to the dealer and the selling end of the great industry. Mr. Newmark is logical in the development of his book so as to carry the new dealer from the very beginning of his business on through the various stages of his broadening experience as a success at the marketing of motor cars.

None could read the 200 pages of *Automobile Business* without absorbing some of the enthusiasm the writer has put into it. Even if the reader happened to know as much as the writer of the book does about selling motor cars, he could not help but become enthused by the peppery and whole-hearted way in which the advice is served up, in page after page. The publisher is the Automobile Publishing Co., Detroit.

Writing an Advertisement

The appeal of S. Roland Hall's latest contribution to the worth-while literature of advertising, published by Houghton Mifflin Co., Boston, Mass., \$1, net, can be said to approximate the universal. Especially so in this day when every tenth man is in the advertising business—and the nine others either cognizant of the subject as advertisers, or confident, should the head-clerk fire them, that as a last resort the advertising profession owes them bread and the wherewith to butter it.

Layman and expert can take from a reading of Hall much to their profit and pleasure. Copy—one of the most important, yet least written-about, of the manifold elements which enter a so-called advertising campaign—comes into its own. The style is chatty and liberally sprinkled

with concrete instances which can be adapted for application to the advertising of practically anything—from motor cars to chicken feed. The principles set down are drawn from experience, coupled to a canny understanding of business psychology in the practical significance of that term. Nothing since Herbert Casson's business romance—*Ads and Sales*—has been quite so refreshing, so stimulating.

Inventions and Patents

A volume intended especially for all persons interested in patents, either as inventors, investors, or manufacturers, is the late work of Philip E. Edelman, published by D. Van Nostrand Co., New York, price, \$1.50 net. Under the title *Inventions and Patents* the author has compiled a work that covers the development of the patent system, workings of the patent office, and treats on such subjects as the germs of invention, the preliminary steps to secure a patent, patentability and practicability, protecting an invention, disposing of patents and also a chapter on infringements.

Automobile Repairing Made Easy

In the latest work of Victor W. Page, *Automobile Repairing Made Easy*, published by the Norman W. Henley Publishing Co., New York, one finds a very complete outline of the processes incidental to motor car construction. Plans are given for workshop construction, suggestions for equipment, clearly-worded instruction on how to make repairs on all parts of all cars. Starting with the engine, the next subject taken up is carburetion, then ignition, cooling and lubrication, the clutch, change speed gearing and transmission. In fact, the work is very comprehensive and forms a basis for learning something besides the fundamentals of motor car anatomy. Price, \$3.

Valve and Valve Gears

John Wiley & Sons, Inc., New York, have recently brought out the second volume of *Valves and Valve Gears*, by Franklin DeRonde Furman. The first volume treated of steam engines and turbines, while the latest volume has to do with gasoline, gas and oil engines. The general characteristics of internal combustion engines are taken up in the second volume and commercial applications of various forms of valves and valve gears are made to gasoline engines. Taken all in all this work is very complete. Price, \$2.

Locomotive Instruction Book

Much credit is due the Locomobile Co. of America, Bridgeport, Conn., for a bit of pioneering to the end that all owners of Locomobiles, regardless of whether their car is a last-minute model or one of the first of the kind to see light, may have a

reference book that covers their individual machines. Beginning with the 1909 Locomobiles and following down to the 1915, the Locomobile Co. has compiled a 174-page book giving complete data on lubrication, general operation, ignition, maintenance, adjustments, etc., for each individual model. In the back of the book is shown full page illustrations of each year's car, together with detailed specifications of each. The text matter is very clear and illustrations are profuse. There are many other cars dating back to 1909 and before on which instruction books are difficult to obtain. It seems a wise move on the part of the Locomobile Co. to compile such information and include it all in one volume.

Handbook of Carburetion

From the press of John Wiley & Sons, Inc., New York, comes a volume written by Arthur B. Browne, entitled *A Handbook of Carburetion*. This work is a comprehensive treatment of the fundamental principles governing the carburetion of air by hydrocarbon vapors and the application of these principles to practical design. The prevailing methods of carburetor testing are discussed in detail and the methods outlined. Detailed directions are given for use of the accelerometer in road testing and a chapter is devoted to motor vehicle testing on traction drums, with comparative results of such tests. The chemistry of carburetion also is treated, telling of the effects of different mixture proportions, the exhaust gas is analyzed and the results of the analyses interpreted. An appendix gives many original formulas for use in carburetor calculations. Price, \$2.

Australian Byways

The antipodes always furnish a wealth of interesting fact and legendary history and the prolific writer needs but to dip his pen into the inky black of the tropical night, or the dazzling light of the campfire, to build and so shape his findings that they will appeal to the whole world. Such must have been the experience of Norman Duncan, who has written a volume—*Australian Byways*—published by Harper & Bros., New York. This volume of travel gives a chatty, leisurely account of a trip taken by the author, along the outskirts of Australian civilization. The big cities merely were passed through, and the journeying principally was by stagecoach, or camel-back, or small coastal steamers from Western Australia to New Guinea. The mannerisms, customs, etc., of the interesting people of the south sea are described in such a way as to leave no doubt of the interpretative instinct of the author, for he has brought it home in a manner that is as clear to the reader as the painted canvas.